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Original Articles

LICHEN PLANUS OF THE ORAL MUCOSA.

WITH REPORT OF TWO CASES.*

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CHICAGO.

In his work on "Differentialdiagnose von Dermatosen und Lues bei den Schleimhauterkrankungen der Mundhoehle, etc.," Trautmann gives a carefully prepared review of the 72 cases of lichen planus of the mucous membranes published up to 1903. There are other cases mentioned in literature, but very briefly. Considering the comparatively frequent occurrence of lichen planus of the skin, the localization of the process on the mucous membranes is rather rare, and it is interesting to note that this subject is rarely and only recently touched on in American literature. Among the cases cited by Trautmann none is from an American author. The importance of this affection is evidenced by the fact that it may easily be confounded with syphilis. There are cases of lichen planus which have a distribution limited to the palms of the hands or to the soles of the feet, or to the penis or to the scrotum, or to two, three or all of these localities which may show some resemblance to syphilitic manifestations. In some cases painless swelling of lymphatic glands is noted. Now if besides such cutaneous lesions and swelling of glands symptoms of lichen planus occur on the mucous membranes of the oral cavity, throat and lips, how easily may a misinterpretation take place and lead to most embarrassing situations.

DESCRIPTION OF DISEASE.

Lichen planus affects most frequently the mouth, rarer the anus and urethra, rarest the larynx. It begins either contemporaneously with the lesions on the skin or it may precede or follow them. In a number of cases the mucous manifestations are the only symptoms of the disease, in which instance, a mistake in the diagnosis may also be easily made. Just as the eruption of the skin is characterized by the development of typical papules from which other pictures are derived, so are the lesions of the mucous membranes resultant from elementary lesions, papules of which show quite different characters from those of the papules of the skin. The elementary lesion of the mucosa presents a punctate to pinhead size, rarely larger, white and glossy or grayish-white and dull (the latter if situated on the tongue) elevation, with a flat, hemispherical or conical top and a roundish or polygonal basis which as a rule is sharply defined, i. e., surrounded by perfectly normal mucous membrane. It is hard and rough to the touch and causes no subjective symptoms. Such papules rarely remain solitary but coalesce and present various lesions, which show their origin from papules if in a recent stage of development.

On the cheeks, lichen planus as a rule affects that part which is just opposite the interdental space and presents papules, oval or circular plaques and most frequently streaks or linear projections with intervening furrows. These projections are arranged in different ways, parallel to each other, convergent or divergent, crossing each other in different directions and forming networks or stellar or brush-like formations. They all show the characters of the elementary papules. In other words, they are opaline, sharply defined and painless.

The lesions of the tongue differ somewhat. On the back, they present irregular, oval or circular plaques, while on the upper and lower surfaces of the margins solitary papules are found or, more frequently, irregular or band and streak-like plaques. All these differ from the lesions of the cheeks. They are as a rule not sharply defined. They are smooth, less hard, not raised above the level of the normal surface, not glossy, but dull and grayish-white. On the mucous membrane of the lips, the papules form irregular plaques and on the vermilion border groups or irregular plaques.

On the soft and hard palates and on the gums, solitary and aggregated papules are more frequent than plaques or networks. On the tonsils the more solitary lesion prevails. As mentioned, the older the process of the mucosa becomes, the more do the papules coalesce and lose their distinct outlines until the elementary lesions can not be recognized as such. The plaques and streaks lose to a great extent their roughness and hardness and at last they become so flat that there is no elevation present, but only the shiny white discoloration resembling a mucosa touched with silver nitrate (Thibierge).[1] These lesions show no tendency to degenerative changes; no erosion or ulceration occurs. The anatomy is similar to that of the lesions of the skin.

DIFFERENTIAL DIAGNOSIS.

Some difficulties are encountered in the differentiation between lichen, leukoplakia proper and syphilitic lesions. It can not be denied that there are striking similarities between the first two, but a number of points may be observed showing a difference. In leucoplakia the patient, as a rule, will consult the physician on account of subjective symptoms, of dryness, stiffness, more or less pain at the ingestion of hot or very cold liquids or spicy substances, while in lichen planus the lesions of the cheeks are rarely noticed by the patient and then only in rare instances when the tongue touching them perceives slight roughness, while those of the tongue may be felt as a slight stiffness in mastication. Leucoplakia

* Read in the Section on Cutaneous Medicine and Surgery of the American Medical Association at the Fifty-seventh Annual Session, June, 1906.

1. Annal. Derm. and Syph., 1885, p. 65.

never heals without local interference, while lichen planus may heal spontaneously or disappear by the administration of arsenic, while the cases calling for local treatment are in the minority.

The changes observed on inspection differ materially from those of lichen planus. Papular formations are rarely encountered and if plaques present themselves, they are, as a rule, thickened and hardened. If on the cheeks and of a recent stage of development, they affect in many instances the mucosa behind the angle of the mouth, while lichen frequently first develops on the posterior portion. If left untreated, leucoplakia shows

Fig. 1.—Lichen planus of the dorsa of the hands.

the tendency to increase in thickness with time, to become rough, rugged, and even exfoliating, while lichen planus becomes flatter and smoother continuously until at last it is level with the mucosa and represents only a discoloration such as is produced by the application of silver nitrate. This latter appearance is noted also in recurring lichen planus. In lichen planus the papillæ of the tongue are flattened while in leucoplakia they may be accentuated. Leucoplakia is infrequent in women while lichen planus is equally frequent in both sexes. At this juncture I call attention to the excellent editorial of Dr. J. N. Hyde.[2] "Lichen Planus and Leucoplasia of Mucous Surfaces."

The differential points between syphilis and lichen planus of the mucosa are: Syphilitic lesions of the mouth are painful (except plaques of the tonsils which in spite of their extensive development sometimes may be painless), lichen eruptions are painless. The syphilitic mucous plaques are situated within a highly reddened infiltrated area, lichen planus is surrounded by perfectly normal mucosa. The syphilitic manifestations show a tendency to progressive changes, viz., erosion, ulceration and proliferation; lichen planus, though also quite persistent—lasting sometimes for months—shows no such changes. These, together with the characteristics of lichen planus previously described may serve to differentiate these processes. In addition to these, the cutaneous lesions—if present and typical—and also the effect of specific treatment, will aid the practitioner to establish a diagnosis.

2. Jour. Cut. Dis., incl. Syph., 1903, p. 105.

TREATMENT.

As regards the treatment, we must repeat what has been already mentioned, viz., that lichen planus will at times heal spontaneously. Some cases yield promptly to the administration of arsenic, the mucous lesions healing as readily as those on the skin. In other cases the mucosa heals later, while some do not even yield to arsenic nor any other systemic treatment. Touton[3] recommends highly the local application of a 1 per cent. solution of bichlorid in alcohol. It is well to prevent all irritation from sharp substances and to instruct the patient as to all necessary hygienic care of the mouth. I am indebted to Trautmann's book for many details which are contained therein as collected from the literature of this subject.

CASE REPORTS.

I wish now to describe the cases which have come under my observation. The patient in Case 1, already reported,[4] was afflicted with lichen planus hypertrophicus, on whose buccal mucosa were found two typical planus papules in the course of his disease.

CASE 2.—Patient, aged 21, male, came under my observation in January, 1903.

History.—Family history was negative as to skin affections or syphilis. Outside of diseases of childhood he had passed through no serious illness. For the last four or five years he had used tobacco immoderately. He consulted me for a gonorrheal infection of the urethra and bladder.

Examination.—Examination also revealed tuberculosis of the apices of both lungs. The blood showed hemoglobin 75 per cent., red corpuscles a little over 4,000,000, leucocytes, 8,000. No other abnormal conditions were found except the affection of the skin and oral cavity which I detected at the examination. The manifestations of lichen planus were limited to the forearms, abdomen, penis, scrotum and buccal mucosa. On the lower surface of the penis and on the left side of the scrotum typical flat polygonal pinhead to pea-sized papules were noted, which were mostly arranged in ringed formations, and plaques up to the size of a dime with polygonal borders and all the other characteristics of the papules. They were dense, yellowish-red and of waxy appearance. On the flexor surfaces of the distal ends of the forearms were about half a dozen lesions, and below the umbilicus a group of five papules. All these showed the same characteristics as the lesions on the scrotum and penis

Fig. 2.—Lichen planus of the lip.

and were not larger than a split pea. The cutaneous eruption caused no inconvenience and he noticed it only at the time of infection with gonorrhea, one month before his first visit to my office. He denied noticing any sensations in the mouth. On inspection, I found on the posterior part of the mucous surface of both cheeks, opposite the interdental space white, glossy linear elevations, forming an irregular network and anteriorly to these

3. Berlin. klin. Wochschr., 1886, No. 23.
4. THE JOURNAL A. M. A., Jan. 11, 1902.

a number of pinpoint to pinhead-size flat papules. The streaks forming the networks showed clearly their derivation from solitary papules and all the typical symptoms as previously described. They were hard and rough to the touch. No other parts of the mucous membrane were affected with lichen, but a pharyngitis sicca was present. The inguinal glands were slightly enlarged and painless, as also the cervical and submaxillary.

For various reasons I deferred the treatment of his lichen planus. The lesions of the skin did not increase in number nor in size, but, on the contrary, they gradually faded, until in April of the same year all had disappeared. The patient was under my care for three more months when he was discharged. At that time the mucous surface was as free from lesions as the skin, although no treatment had been employed.

Further Examination.—In April, 1906, he called on me for treatment of scabies. I interrogated him as to whether he had noticed any lesions in the mouth or on the skin during the last three years, but he had paid no attention to the matter. Besides the symptoms of scabies, I found the following: The penis and scrotum were free from lichen though the leucodermatic spots were still present and of the same size as three years ago, but now with a hyperpigmented area. An irregular leucodermatic spot was also seen on the radial side of the left forearm, the former seat of lichen lesions. There were four lichen lesions of pinhead to split-pea size on the flexor surface of the distal end of the right forearm, and three pinhead size on the corresponding part of the left forearm. On the lower part of the back, to the left of the spinal column, were three papules of pinhead size. All these papules were yellow and waxy.

On the left margin of the tongue were two plaques, one of the size of a pea, the other of a bean, and between these a dull,

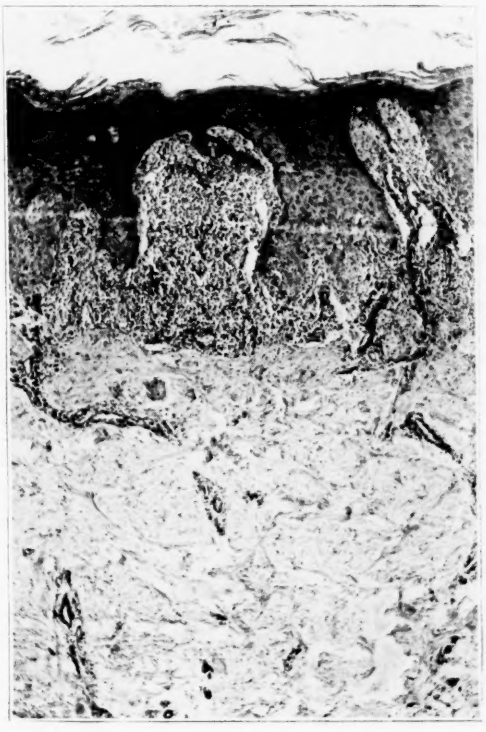

Fig. 3.—Microscopic section of lichen planus. Low power.

white streak. On the buccal mucosa of both sides were irregular plaques reaching up to the soft palate. On the gum of the lower jaw on both sides, around the molars, white streaks and irregular plaques were noted and on the uvula an irregular white spot. All of the last described lesions of the mouth were perfectly smooth, not elevated, opaline, most of them resembling a mucosa touched with silver nitrate.

At the April meeting of the Chicago Dermatological Society (1903), I demonstrated the patient at which time the mucous lesions were still present, but the cutaneous surface was completely free except that those parts of the penis and scrotum which had previously been the seat of lesions, showed a total absence of pigment. In other words, there was a leucoderma or vitiligo, which differed from its normal appearance by the absence of the hyperpigmented zone. This case bears a striking resemblance to the cases of Pincus[5] and Danlos.[6]

CASE 3.—A girl, aged 18, consulted me for her ailment about the time I cared for Case 2. She was chiefly annoyed by the appearance of her hands and lower lip.

History.—In her family history I elicited nothing bearing on her case nor had she had any previous skin affection or other

Fig. 4.—Microscopic section of lichen planus. High power.

serious illness. She had always enjoyed good health. Her present condition dated back a month or two, beginning first on her hand and subsequently affecting her lip. She complained of itching of the scalp.

Examination.—Examination of the internal organs and urine was negative. The blood showed a decrease in hemoglobin to 70 per cent. The scalp revealed the presence of excoriations due to pediculosis. On the nape of the neck were excoriations and livid flat elevations varying in size from a pinhead to that of a bean. They showed the typical characteristics of lichen, some of them closely representing the former seat of excoriations. They were all irregular in outline and had a rather rough surface. The nuchal and cervical glands were enlarged and slightly painful. On the dorsum of the right hand were about 25 polygonal lesions, pinhead to pea size, of a pale yellowish-red color, flat, smooth and shiny, the larger ones showing distinctly their derivation from the coalescence of smaller papules (Fig. 1). Be-

5. Dermat. Ztschr., 1903, p. 169.

6. Annal. Derm. and Syph., 1904, p. 486. See also the articles of Riecke on "Lichen Planus," Mracek's Handbuch der Hautkrankheiten, 1905.

sides, in the larger ones, there was a perfect depression reaching to the level of the normal skin, the color of this central portion being yellowish-brown (Lichen annularis). In the right inguinal region there was a group of about ten papules of the same appearance as those on the dorsum of the right hand but without a central depression. On the dorsum of the left hand were a few typical papules, pinpoint to pinhead size. No other part of the cutaneous surface was affected.

The vermilion border of the lower lip showed a copious eruption consisting of groups of pinpoint to pinhead size opaque, white, polygonal and round papules, sharply defined and irregular as well as roundish white opaque plaques of various sizes, some of the round ones having a depressed center (Fig. 2). The margins of all these lesions were slightly raised above the level of the normal portions of the vermilion border, of which there was not much left unaffected. They felt dry and rough to the touch. On the upper and lateral surface of the left margin of the tongue and the lower surface of the right margin there were grayish-white, irregular and streak-like smooth plaques not sharply defined. On the back of the tongue in its posterior half were three slate-colored plaques arranged asymmetrically in the raphe in close proximity one behind another. Their size was about that of a dime, their surface smooth and dull and lacking the distinct papillæ. Their consistence was not different from that of the surrounding normal mucosa. They were not raised. There was no hyperemia or infiltration zone around them. They were round and did not show any trace of their origin from typical mucous papules, while on the borders of the tongue and the vermilion border of the lower lip there were true papules and papular indications in the periphery of the plaques. The clinical symptoms justified the diagnosis of lichen planus.

Patient objected to an excision from the lip or tongue but a piece was excised from a larger lesion of the dorsum of the right hand. It was fixed in Zenker's solution. The paraffin sections were stained in hematoxylin and eosin, Unna's alkaline methylene blue, eosin and carmine and Weigert for elastic fiber.

Microscopic Examination.—(Figs. 3 and 4.) The epidermis as a whole is thickened. The horny layer consists of horny wavy lamellæ and is loosely attached. It is thickened and does not show any nuclei. The granular layer is in places thickened. The stratum spinosum is also thickened and shows widened intercellular spaces especially in its lower portion. Some of the cells show vacuoles and between the lower rows of cells round infiltration cells penetrate from the papillary layer. The pigment is not increased. The epithelial projections are broadened and elongated. The papillæ between these enlarged pegs are also hypertrophied and show a dense infiltration of small round cells which show a tendency to arrangement along the dilated blood and lymph vessels. Typical plasma cells or plasma mast-cells were not found. The subpapillary layer shows the same dense infiltration and beneath this all infiltration ceases abruptly. The reticular layer of the corium is perfectly normal excepting here and there a few rows of cells around blood vessels. The networks of elastic fibers are normal. Follicles and sebaceous glands were not found. Around the lichenoid structure the skin were perfectly normal (Figs. 3 and 4).

Treatment.—This consisted in the administration of pills of reduced iron, arsenious acid in increasing doses and a regulated diet. No local applications were made. The lesions of the skin and of the mucosa showed decided improvement after about three weeks when the patient disappeared from my care.

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[THE DISCUSSION ON DR. LIEBERTHAL'S PAPER IS IN THE BACK PART OF THE JOURNAL, UNDER "SECTION DISCUSSIONS."]

The Medical Genius.—The genius in the medical profession is rare. I can not remember that I ever met one, but I have met lots of great big fellows who possessed and made use of the average amount of brains which was theirs. One of the glories of our country is that they are to be found everywhere and in all lines of work.—James F. Percy, M.D., in the *Illinois Med. Jour.*

MYOMATA CUTIS.*

M. L. HEIDINGSFELD, M.D.
CINCINNATI.

Reduplication of the involuntary muscular fibers of the skin to the degree of tumor formation is probably one of the rarest conditions encountered in dermatology, if the limited number of accepted cases thus far reported in the literature is duly considered. It is more rarely encountered if Besnier's[1] commonly accepted classification is observed and those cases which primarily spring from subcutaneous muscular tissue, the dartos, labia, mamma, etc., the so-called dartoic myomata, which are essentially of surgical importance, are properly excluded. Radcliffe Crocker[2] states that his case is the eleventh clearly defined instance in the literature and accords value to the two additional cases of Wolters'[3] doubtful classification. Leslie Roberts[4] asserts in 1900 that his additional case constitutes the fifteenth well defined instance. There have been but few cases reported in recent years, and Huldschinsky[5] maintains that his constitutes the sixteenth additional case.

Fig. 1.—Case 1. Incipient growth of myomatous tissue, in proximity to their hair follicle and corresponding to the site of its arrector pili, from which it has probably taken its origin.

A casual survey of the literature reveals a somewhat larger number of cases of myoma cutis, than some of these reports indicate, and this disparity exists because many cases are not credited recognition, since they lack certain clinical characteristics. Myomata cutis present exceedingly varied clinical manifestations, but a fairly uniform, easily recognized, and somewhat characteristic histopathology.

In cutaneous affections it is essential to show a fair degree of consideration to the clinical aspects; it is equally important to give proper attention to the histopathology. It seems particularly unjust and unwarrant-

* Read in the Section on Cutaneous Medicine and Surgery of the American Medical Association at the Fifty-seventh Annual Session, June, 1906.

1. Ann. de Derm., 1880, p. 25; also p. 332.
2. Brit. Jour. Derm., 1897, pp. 1 to 48.
3. Wolters: Arch. f. Derm. u. Syph., 1893, xxv, p. 414.
4. Brit. Jour. Derm., 1900, xii, p. 116.
5. Inaug. Diss., 1901.

ible, to ignore entirely the stable and easily recognized histopathology in behalf of a varied and indeterminate clinical character.

REVIEW OF LITERATURE.

The clinical characteristics as already stated are exceedingly varied. The lesions are single or multiple, congenital or acquired. Single lesions are reported by Förster,[6] Sokolow,[7] Axel-Key,[8] Audry,[9] Santesson,[10] Miglionini,[11] Herzog,[12] etc., and are generally excluded from general recognition. The multiple cases vary from a few to sixty or more as in the case of Lukasiewicz,[13] 100 or more as in Marshalko's[14] case or innumerable as in the cases of Verneuil[15] and Besnier.[1] Some develop in earliest infancy (Hess,[16] Jarisch[17]), the majority during adolescence, and not a few in advanced age. Unna,[18] Darier, Krzysztalowicz[19] and a few other observers attribute a congenital character to the affection, and hold it an additional confirmation of Cohnhein's theory of embryonic remains, puberty, stimulating the developmentally misplaced tissue to renewed activity. Wolters'[20] third case, which occurred over a meningocele and Dore's[21] case in a man of 29, whose father was also afflicted with the same condition, are important contributions to the congenital origin of at least some of the cases.

In a number of cases the lesions manifested themselves late in life, and were of short duration. Whitfield[22] reports a case in a man 47 years of age, of five to six years' duration. Graham Little's[23] case occurred in a middle-aged woman and was scarcely of six months' duration. In White's[24] case the first lesion occurred four years prior in a man aged 45 years. A traumatic origin has been attributed to a few of the cases. Jadassohn's[25] second case, in a female aged 37, followed vaccination. Brigidi and Maracacci's[26] case in a man aged 54, was preceded by swelling of the dorsum of the right hand without cause, which was followed in three months with the appearance of the nodules, and deep wine stains of telangiectasis. This was followed in eighteen months by the formation of similar lesions on the left hand and feet. Whitfield's[22] case followed an eruption of blisters. The lesions vary in size from a millet seed to a hazel nut, or larger, and are distributed as a rule over limited areas, a portion of the trunk or face, or one of the extremities with no special area of predilection. The color of the lesions varies from red, brown, yellow, blue, purple dark-colored to translucent or colorless. Many are accompanied with marked dilatation of the superficial capillaries and veins of the immediate neighborhood, of sufficient degree to mask the clinical appearance of the myomatous lesions so that the first diagnosis is often that of angioma, or cavernous angioma; for this reason Neumann[27] divides myomata into two classes, (1) pure myomata, tumors of involuntary muscular tissue with a small amount of fibrous and elastic tissue, and (2) cavernous myomata, which are also rich in vascular tissue and cavernous spaces. For the same reason Virchow[28] classes the affection with the erectile tumors under the head of myoma telangiectodes. Severe paroxysmal pain, sharp lancinating, vice-like in nature which may occur spontaneously at any period of the twenty-four hours, or be induced by physical exertion,

Fig. 2.—Case 1. Interlacing bundles of myomatous tissue and inflammatory exudate, taken from the center of the growth.

Fig. 3.—Case 1. Myomatous tissue and inflammatory exudate, containing cavernous dilated blood vessels in the superficial portion of the growth.

6. Wien. med. Wochschr., 1858, p. 130.
7. Virchow's Archives, 1873, lviii, p. 316. Quoted by Neumann.
8. Quoted by Neumann.
9. Ann. de Derm. et de Syph., 1898, ix, p. 182.
10. Quoted by Neumann.
11. Giorn ital. delle Mal. Ven. e della pelle, No. 1, 1905; abst. N.P.D., vol. xl, p. 610.
12. Jour. Cut. Dis., 1898, xvi, p. 527.
13. Arch. f. Derm. u. Syph., xxxiv, 1892, p. 33.
14. Monatschr. f. prakt. Derm., 1900, xxxi, p. 317.
15. Soc. Anat., 1858.
16. Virchow's Archives, 1890, cxx, p. 321.
17. Deutsch. Derm., Gesell., 1895, v, p. 360.
18. Histopathologie der Haut., p. 863.
19. Monatbl. f. prakt. Derm., 1906, xlii, p. 303.
20. Derm. Ztschr., No. 7, 1905.
21. Brit. Jour. Derm., 1902, p. 55.
22. Brit. Jour. Derm., xvii, p. 267.
23. Derm. Soc., London, June 14, 1905; also Brit. Jour. Derm., xvii, p. 265.
24. Jour. Cut. Dis., 1899, xvii, p. 266.
25. Virchow's Archives, 1890, 71, p. 88.
26. Imparziale, 1881. Quoted by Neumann.
27. Arch. f. Derm. u. Syph., xxxix, p. 3; Ann. de Derm. et Syph., 1897, p. 93.
28. Virchow's Archives, 1854, pp. 553-554, Die Krankhaften Geschwülste, vi.

temperature changes, or local pressure, is present in somewhat over one-half the cases. It is commonly regarded an important diagnostic symptom, but is entirely absent in a large per cent. of the cases. It occurs for the most part in the larger and longer standing lesions, and is explained on the basis of pressure of the muscular tissue on included nerves. Joseph[29] regards it as merely a coincident, without possessing special clinical significance.

The clinical features therefore are of such a varied and indefinite character that the diagnosis is a matter of conjecture in the most favored instances, and generally requires histologic confirmation to merit unqualified acceptance. In many of the cases the diagnosis was not made until the microscopic examination was completed, which resulted in not a few instances in a change from xanthoma, lymphangioma, epithelioma, keloid, adenoma sebaceum, etc., to myoma.

Herzog's[12] diagnosis was based purely on the histologic examination, the single slowly growing, rather painful lesion on the cheek, which was about two-fifths of an inch in diameter, was previously diagnosed epithelioma, and excised for histologic examination. The prehistologic diagnosis in Krzysztalowicz's[19] case was adenoma sebaceum, with lesions on the ala, and septum of the nose and lip. The cases of Babes,[30] Brigidi and Maracacci[26] are probably derived from nevi and are generally discredited (Unna[19]). The material from Vernieuil's[15] case came from the dissecting room. The lesions in Whitfield's[22] case were so translucent that a lymphangioma was suspected, until fluid failed to exude on puncture, and the biopsy established the myomatous character of the lesion. Neumann[27] remarks the clinical resemblance of his case to xanthoma tuberosum, or urticaria papulosa. Wolters'[20] second case bore a deceptive clinical resemblance to xanthoma diabeticorum, and he states that a case of Crocker's,[2] reported as xanthoma may be rather a case multiple myoma. If the clinical features, neither in point of form, color, consistence, derivation, spontaneous paroxysmal and pressure pain, are not constant enough in themselves to assure a diagnosis, the biopsy, as Max Joseph[29] correctly states, will readily determine the character of the affection; and reduplication of involuntary muscular tissue to the degree of tumor formation, having its origin and development in the skin must be classed myomata cutis, irrespective of its congenital or acquired nature, its traumatic or idiopathic origin, its red, brown, yellow, pink, purplish, translucent or normal skin color, its soft, firm, or elastic consistence, its indolent or painful nature, associated or unassociated telangiectases, multiplicity, distribution, growth and development.

Fig. 4.—Case 1. Vascular meshwork of dilated veins, partially occluded with inflammatory exudate; some completely, others incompletely filled with blood; taken from the deeper layers of the growth.

Fig. 5.—Case 1. Two large, thin-walled cavernous vessels, partially filled with blood and surrounded with inflammatory exudate; taken from the deeper layers of the growth.

CASE REPORTS.

CASE 1.—*History.*—Nov. 18, 1904, J. R., tailor, aged 36, presented himself for a painful lesion over the left knee the size of a silver quarter. It followed a fall from a bicycle, which the patient received 9 years ago while trying simultaneously to avoid a wagon and a street car coming in opposite directions. He was thrown violently against the wagon and sustained a severe contusion of the left knee. The injured area was covered with an ecchymosis the size of a silver dollar, and accompanied with extensive swelling, confining the patient to his bed for five days and inducing partial disability for almost a subsequent week. The ecchymosis underwent the characteristic changes from red to purple and brown, and the adjacent swelling disappeared. The central area, however, gradually took on a bluish red discoloration, and in the course of 6 months or a year became enlarged and painful, presenting as nearly as patient can determine its present characteristics.

Examination.—Over the external tuberosity of the tibia there was an irregular elliptical area about the size of a silver quarter, bluish red in color, and covered with four or five soft, easily compressible swellings, which presented all the clinical features of tortuous, dilated, superficial veins, and from their appearance prompted the diagnosis of a cavernous angioma of the skin. Closer examination also revealed five or six small, rounded, slightly elevated, smooth, glistening nodules, yellowish brown in color, varying from pinhead to a split pea. Patient stated that the lesion was the site of severe paroxysmal, lancinating pain, which was easily induced by pressure, but was often spontaneous and induced by such slight causes as the pressure of the undergarments or trouser leg. The excruciating

29. "Gutartige Neubildungen," Mracek's Handb., 1904.
30. Wien. med. Wochschr., 1856, p. 130.

character of the pain induced the patient to seek attention, and the lesion was promptly excised under cocain anesthesia. The pains persisted for a short period after the excision, but gradually disappeared, and there has been no recurrence, either of the tumor or pain after an interval of over one year.

Histologic Examination.—The growth was sectioned in serials and revealed two distinct types of pathologic change. Some of the areas presented dense masses of interwoven bundles of involuntary muscular fibers, distributed for the most part in the superficial layer of the cutis, extending to the epidermis, invading the papillæ and entirely obliterating the latter over large areas by pressure atrophy. The nuclei of these muscular bundles preserved their characteristic rod shape appearance and were cut variously longitudinally, crosswise and obliquely in accordance with the interlaced distribution of the respective bundles. They were imbedded in finely fibrillated protoplasm, with no demarcation between the various cells. The general direction of the bundles was for the most part parallel to the surface of the skin. In the apparently older, denser and more central areas, they had replaced all other structures, save a few well-preserved capillaries, with a moderate amount of endothelial proliferation and perivascular inflammation, and lymph spaces which were widely distended and extensively surrounded with mononuclear lymphocytes. The muscular tissue was free from elastic fibers which were well preserved and of the muscular coats of the blood vessels and the absence of any direct connection, as nearly as could be discerned between the muscularis vasorum and the tumor mass. There was no well defined muscular net around the free lying sweat glands, and the entire absence of sebaceous glands served to render these structures an improbable origin. The only additional pathologic change was a moderate amount of inflammatory infiltration between the muscular cells in limited areas of the tumor mass, consisting chiefly of the mononuclear lymphocytes and epithelioid cells.

CASE 2.—*History.*—H. C., aged 10, presented herself March 12, 1900, with a nevus situated over the left portion of the forehead, face, neck and left ear and encroaching to the median line anteriorly on the neck. It was present from birth and had undergone no material change.

Examination.—The lesions on the forehead were linear in form and grouped closely together into a yellowish, slightly elevated patch about the size of a postage stamp. The remainder consisted of rounded macules and papules, varying in size from a pinhead to a split pea. Some were elevated, rounded and glistening, yellowish and reddish brown in color, others darkly pigmented, firm in character and insensitive to touch. Some were soft, purplish or red in color and telangiectic in character. The remainder were flat and appeared to be pigmented macules, varying from black to light brown in color. The clinical diag-

Fig. 6.—Case 2. Myomatous tissue taken from a mixed type of nevus linearis.

Fig. 7.—Hypertrophy of involuntary muscular tissue, taking its origin from an arrector pili in a case of pityriasis rubra pilaris.

abundantly present in the surrounding tissue as far as the confines of the tumor masses (Figs. 1 and 2).

Elsewhere in the deeper layers of the corium were areas which consisted of closely aggregated vessels, with their widely distended lumina surrounded by thin walls, filled with circulating blood, or walls thickened with extensive endothelial proliferation, having the character of well preserved mononuclear lymphocytes, until the lumen was partially or completely occluded. These intensely vascular areas, which had the appearance of pure venous angio-cavernous tissue, were also free from elastic fibers, and often merged with the masses of involuntary muscular tissue (Figs. 3-5).

Hair follicles were here and there well preserved in the muscular masses; sweat glands were well preserved, but there was no evidence of sebaceous glands. In the more normal appearing outlying areas of the specimen were numerous hair follicles, which on careful examination revealed arrectors pili in various stages of hypertrophy from a single thickened club shape strand to lobulated masses. Some of the tumor masses of muscular tissue could also be readily traced to the arrectors of hair follicles, which made it evident that they were the origin. This was further confirmed by the normal appearance

nosis was nevus linearis. Pain was constantly absent. On June 23, 1904, patient was seen the second time and the lesions had multiplied enormously in point of number, extending over the left shoulder and down the chest as far as the nipple. The appearance and character of the lesions remained the same. Pain was constantly absent.

Histologic Examination.—The lesion on the forehead was shown to be essentially an adenoma of the sebaceous glands. The smaller lesions, when examined histologically, revealed a great variety of pathologic change. The linear, yellowish, elevated lesions on the forehead bore the structure of an adenoma of the sebaceous flands. Pigmented lesions showed a vast amount of pigment in the lower layers of the rete and cells pregnant with same, in the stratum papillaris and a general structure similar to the common pigmented mole, with which it bore a deceptive clinical resemblance. Others showed larger masses of fibro-connective tissue in the corium, similar in structure and appearance to that of a true keloid. Others, the sarcomatous appearance that is not uncommonly encountered in the ordinary pigmented mole. A few lesions which were clinically somewhat warty in appearance bore the structure of a papilloma. The lesions which were clinically small rounded

firm, slightly elevated, reddish brown in color, and telangiectic in appearance, showed histologically dense masses of interwoven bundles of involuntary muscular fibers, distributed for the most part in the papillary portion of the cutis. The elongated nuclei, with rounded extremities were abundantly present and characteristic in appearance and imbedded in faintly-fibrillated cellular substance, which was moderately infiltrated with lymphocytes. The masses of muscular tissue were well supplied with small vessels, with rather thick muscular coats; the muscular tissue seemed to be distributed for the most part around the larger vessels, and a direct connection was apparently evident at some points, which permitted the origin of the muscular tumor to be attributed to the muscularis vasorum. Elastic fibers were well conserved around the mass of involuntary muscular tissue and extended themselves in well-defined septa between the interwoven muscular bundles; well preserved hair follicles were present in normal number and appearance and apparently did not share the muscular hypertrophy. The arrectors pili were not in evidence. Remnants of sebaceous glands were conserved in close proximity of the hair. Sweat glands were absent, and the only remaining pathologic change of any note was a moderate dilatation of a few deeper vessels of the cutis (Figs. 6 and 7).

These cases present the following clinical and pathologic characteristics: The chief clinical feature of Case 1, characteristic of myomata cutis, are the paroxysmal pain, which at times was spontaneous, at times induced by insignificant physical agencies: the yellowish red color, firm character, and rounded appearance of the myomatous lesions. The bluish red dilatation of the cutaneous vessels, which induced the pre-biopsical diagnosis of cavernous angioma, possesses some degree of confirmatory value, inasmuch as it is reported to accompany a considerable number of the cases thus far recorded. The unusual clinical features are the predisposing trauma; the localization of the lesions to a comparatively small area, without evidencing much tendency to multiply in number or increase in size. In Case 2 the individual lesions bear a clinical resemblance, in size, color and form, to most of the cases currently reported, and were multiplied materially in number; some of the lesions also showed characteristic telangiectases. Unquestionably, from a purely clinical standpoint, it can be grouped with the linear nevi, as evidenced by the clinical appearance, and the histopathology of a large majority of the lesions. The entire absence of pain also militated against the clinical diagnosis of myoma. Its early development and congenital nature can be regarded as evidence for as well as against its myomatous nature.

From a purely pathologic standpoint both cases were unquestionably myomata cutis. Both showed interlacing bundles of involuntary muscular fibers, situated for the most part in the upper layers of the cutis, reaching or invading the papillæ and obliterating them by pressure atrophy. They contained the characteristic long rod shaped nuclei with rounded extremities, imbedded in a matrix of finely fibrillated protoplasm, with no line of distinct demarcation between the cells. The point of origin in the first case was apparently the arrector pili, in the second the muscularis vasorum. In other words there was a preponderating overgrowth of involuntary muscular fiber, originating and developing in the cutis, i. e., myomata cutis.

MICROSCOPIC EXAMINATION.

The diagnosis of myoma cutis in probably the vast majority of cases, one might say nearly all the cases, has been stumbled on with aid of the microscope. In some no diagnosis was essayed until after the histologic examination was completed. In not a few the microscope effected a change of diagnosis, from keloid, xanthoma, angioma, zoster, lymphangioma, etc., to myoma, and doubtless *vice versa*, from myoma to other affections. Cases without histologic confirmation would doubtless be accorded doubtful classification value. Recently I saw a woman, with two small circumscribed patches, the size of a bean, on the lobe of the right ear, each containing a number of glistening, elevated, translucent papules, of two years' duration, which failed to exude any fluid on puncture. The affected ear was the site of severe paroxysmal pain, of spontaneous nature. My diagnosis wavered between myoma and lymphangioma, in favor of the former, until the latter diagnosis was confirmed by histologic examination.

In an affection of this character, in which the microscope plays the essential and important rôle in establishing the diagnosis beyond a question of mere conjecture, reduplication of involuntary muscular tissue to the degree of tumor formation must be classed myoma cutis, irrespective of its congenital or acquired nature, idiopathic or traumatic origin, its red, yellow, brown, pink, translucent or normal skin color, its firm, soft, or elastic consistence, its single or multiple character, its development from arrectors pili, tunica media vasorum, or glandular elements, its simple character or associated hypertrophy of blood or lymph vessels, or other elements. These associated conditions may be qualified by such attributive terms as solitary, multiple, congenital acquired, traumatic, idiopathic, lympho, angio, fibro, etc. If these considerations are properly observed, the total number of cases is materially increased, and the affection, though doubtless frequently overlooked, or mistaken for other cutaneous affections, is not as uncommon as certain well accepted reports indicate.

Simple hypertrophy of involuntary muscular fiber is by no means uncommon. It accompanies many of the chronic inflammations of the skin, particularly those which are accompanied with chronic cutis anserina, and creepy and chilly sensations. I have found it constantly associated with pityriasis rubra pilaris, and present in severe cases to an extreme degree. Likewise in porokeratosis, chronic dermatitis, and other chronic paresthetic cutaneous affections. If its simple hypertrophy is easily affected by often slight and dissociated influences, its overgrowth from direct or special agencies is not unlikely.

Of special interest in this direction are the experiments of Vignolo Lutati[31] on animals in reference to the effect of intoxications of the general metabolism on the involuntary muscular fibers and their karyonetic response to stimulating influences. Many cases are reported in the literature without histologic examination, and reported under the head of lymphangioma, lymphangioma cysticum, angioma, xanthoma, keloid, etc., some with, some without histologic reports, that doubtless may have found a place for themselves, with careful and proper observation, under the classification of myomata. A very conservative estimate of well defined cases, worthy of general acceptance, will readily place the number of cases which can be enumerated at the present day, at thirty, and possibly forty.

From our present state of knowledge, the diagnosis must depend largely on the pathologic findings. At least this is the opinion which is most generally expressed, and which has received the most ready acceot-

31. Arch. f. Derm. u. Syph., lviii, p. 323.

ance. Those who reserve for the affection a purely clinical classification, admit in a measure its shortcomings; one of the most representative of these, Crocker,[2] states:

With all these variations in symptomatology it is difficult to find any one symptom absolutely constant; but on the whole the most characteristic features are: The extremely slow and progressive development of the tumors in number and size, the tendency to group into close and semicoalescing patches, and their asymmetrical distributions; the moderate size attained by the tumors, which were seldom larger than a pea; the dull red color, and firm consistence of the tumors, with a normal epidermis over them, and their mobility over subjacent parts; their painless character at first with the subsequent strong tendency to most severe paroxysmal spontaneous and provoked pains; and finally they do not recur on removal.

These symptoms, singly and collectively, are not absolutely characteristic of the affection. Each occurs in other affections, and may be entirely absent in myoma; all collectively present, without a pathologic confirmation, could not establish beyond reasonable question the diagnosis. Pain is absent in probably one-half the cases, and when present may be attributed to neuromata or other forms of painful new growths. Wolters'[20] second cases developed acutely and showed a symmetrical distribution. The lesion in Miglionini's[11] case was single, as large as a hazel-nut, and situated on the knuckle. Herzog's[12] was single, on the cheek; Förster,[6] Sokolow,[7] Santesson[10] and Axel-Key[18] were all solitary cases. Jarisch's[17] case was probably of congenital origin, and Wolter's[20] third case situated over a meningocele, can likewise be attributed a similar origin. The remaining clinical features are sufficiently varied to require no special comment.

The histogenesis of myomata cutis presents some features, which are scarcely less interesting, because of their varied character, than the clinical history. Those who have made histologic studies in this direction are about equally divided in their results: a fairly representative number express their conviction that the derivation of the muscular overgrowth can be traced to the muscular coats of the vessels of the skin, arrectors pili, or the muscular appendages of glandular elements: the remainder frankly admit that their painstaking efforts in establishing a true derivation have been negative in character or purely conjectural. Jadassohn,[25] in his second case, Roberts,[4] Nobl,[32] Neumann,[27] Marschalko,[14] Audry,[9] Broelemann[33] attribute the derivation to the arrectors pili; Crocker,[2] Jadassohn[25] in his first case, Hardaway[34] and Hess[16] to the muscular coats of capillaries; Wolters, Brigidi and Maracacci[26] to the involuntary muscular fibers of the glandular elements and hair follicles. Krzysztalowicz[19] admits his inability to arrive at any definite opinion, but the peripheral portions bore evidence of arrector pili derivation. Jarisch[17] and Lukasiewicz'[13] derivations are indeterminate as respects arrectors pili, glands, or blood vessels. Huldschinsky[5] attributes to the blood vessels a probable derivation. Wolters[20] attributes the probable derivation of his third case to the capillaries, although glandular elements were sparingly in evidence, and a portion of the growth could be readily traced to arrectors pili. Interesting, if not amusing, is the latter's conjectural explanation of the growth and development of the myoma which was seated over a meningocele, on the basis of a compensatory hypertrophy, on the part of Nature to arrest the efforts of the pulsating meningocele to effect a rupture. Personal observation leads me to suspect from the peripheral appearance that the arrectors pili fostered strongly the myomatous hypertrophy in the first case and the musculi vasorum in the second.

It is impossible to determine, however, beyond purely conjectural speculation, whether the muscular hypertrophy had its origin and development in these two respective areas, or whether these structural areas yielded to the general stimulus, which expended itself on all involuntary muscular tissue of the affected area, in degree proportionate to the amount of each present, and its more favored distribution. The latter explanation seems to be the more plausible one, and is analogous to the hypertrophy of all glanduar and epithelial tissue in the immediate neighborhood of an epithelioma, which owes its overgrowth to a similar form of stimulating influence.

On this basis the diversified character of the histogenesis, from glands, arrectors pili, vessels, and all forms of involuntary muscular tissue, is readily explained. All the diversified clinical and physical phenomena find their best explanation on the basis of some such unknown influence, which stimulates the involuntary muscular tissue of the skin to a preponderating development and overgrowth, irrespective of age, area, predisposing causes, and similar inconstant conditions.

The tendency may be inherited, present from birth, and called into activity by the influences of puberty, trauma, etc. Inasmuch as all tissue in general is subject to similar changes, involuntary muscular tissue is probably no exception, and doubtless shares in all the variations of pathologic change, from single hypertrophy to preponderating and irregular conglomerate overgrowth, with all the corresponding gradations of clinical and physical change. In that event the microscope affords the easiest, best and most accurate determination as regards what constitutes, in a generally accepted sense, myomata cutis.[35]

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32. Arch. f. Derm. u. Syph., 1906. lxxix, p. 31.
33. Arch. f. Derm. u. Syph., 1904, p. 163.
34. Am. Jour. Med. Sci., April, 1886, p. 511; also Jour. Cut. Dis., 1904, p. 375.
35. For further literature the reader is referred to Arzovan and Vaillard: Ann. de Derm. et. Syph., 1881, p. 60; Fox: Brit. Jour. Derm., 1902, p. 56; Klob: "Path. Anat. d. Weibl. Sexualorg." 1864, p. 482; Vidal: Jour. Cut. Dis., 1885.

LATE PHLEBITIS FOLLOWING CLEAN ABDOMINAL OPERATIONS.

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Many surgeons have seen iliac and crural phlebitis develop from the tenth to the twentieth day (usually about two weeks) after abdominal operation which had been aseptic throughout and followed by prompt and perfect healing of the wound.

A disease which appears so unexpectedly and converts a simple operation, with the promise of speedy recovery, into one of suffering, inconvenience and prolonged confinement and disability, merits further study and consideration. Though seldom fatal, it is always a most unwelcome complication and a vexatious disappointment to both patient and surgeon.

The typical cases seem to occur after an interval operation, for example, a clean appendectomy.

In 1903 I expressed the opinion[1] that I had never seen

1. "The Sequels and Complications of Appendicitis," Colorado Medicine, April, 1903.

a case of iliac or femoral phlebitis after an abdominal, rectal or genitourinary operation that was not due to infection. Sepsis, I considered, the commonest cause, even if the operative field did not seem to justify it. Further observation and experience compels me to modify this opinion.

The manifest, acute, septic phlebitis, attending or soon following operations, is not considered in this paper.

I wish to discuss especially that form of phlebitis culminating in the veins of the legs and known to occur most frequently about two weeks after simple aseptic abdominal operations, without being preceded by fast pulse, elevation of temperature, pain or any indication of its advent. In the great majority of cases it culminates in the vessels of the left leg, no matter where incision is made.

Cordier[2] collected 232 cases; of these, about 200 were intra-abdominal operations and 166 clean cases, hysterectomy, for uterine fibroids leading in order of frequency with appendectomy next. While this form of phlebitis occurs occasionally in many other diseased conditions, it so far seems peculiarly incident to abdominal operations.

The cases of pulmonary embolism occurring soon after severe abdominal operations, usually hysterectomy for large uterine fibroids, are interesting and distressing, but are hardly to be considered in connection with femoral and saphenous phlebitis. In this class of cases pulmonary embolism is very rare.

Mr. Haward[3] presents statistics from five London hospitals of 3,334 operations for appendicitis, with 29 cases of phlebitis and 8 of pulmonary embolism, showing about 1 per cent. in this class of operations. In the last few years I have had two cases follow operations for appendicitis. In one acute case, in which the operation was clean because of early intervention, phlebitis of a mild character occurred in both legs three weeks later. The other case was one of chronic appendicitis, with the following history:

History.—Mrs. G., aged 37, married, had one child eight years old. Labor was natural and convalescence uneventful. She has not been pregnant since. She has always been thin and for the last year or two she has been anemic and neurasthenic. Her appetite is uncertain and she is troubled much with indigestion and flatulence. In the spring of 1905 she had occasional attacks of abdominal pain followed by tenderness over the appendix. These continued until she was examined by me in January, 1906, when a diagnosis of chronic appendicitis was made and I operated on her January 27. She also had retrodisplacement of the uterus, with no adhesions or discomfort; she never had inflammation of uterus or appendages.

Operation.—The appendix was removed through a short central incision, and at the same time I did a ventrofixation. Both were done quickly and without the least difficulty. There were no adhesions about the appendix. It was distended throughout with liquid fecal matter and was congested in the proximal half, but the tip was pale and almost bloodless. The appendix was ligated close to the cecum, the stump cleaned with peroxid of hydrogen and salt solution and pouched with one circular stitch. In fixing the anterior surface of the fundus uteri to the lower angle of the wound, care was used not to puncture the sheaths of the recti, the object being not to damage the epigastric veins which lie beneath the muscles; in fact, it was not necessary to ligate a single vein during the operation.

Postoperative History.—The wound healed promptly, perfectly and permanently. There was not the slightest interruption to a smooth and satisfactory convalescense. On the second day the temperature was 99.2; after this, from January 28 to February 8, it varied from 98.5 to 98.7 and the pulse was about 75. The kidneys were acting normally at all times, and constipation was prevented by enemas and an occasional simple laxative. There was indigestion during the first two or three days after operation. On February 8, twelve days after operation, the temperature in the evening was 99.2 and pulse 80. At same time she complained of tenderness and pain, which were quite severe in the left calf and under the instep, and lastly in the groin, showing unmistakable phlebitis. Next day the temperature and pulse were normal.

On February 10, temperature was 99.2 and pulse 80. After this date both continued practically normal, but the pain and swelling of the leg continued. The leg was treated by slight elevation, wrapped in cotton and loosely bandaged until the fourth week, when rubbing and gentle massage were commenced and continued daily until convalescence was well advanced. It was two months before the patient could use the leg with comfort. She has since worn an elastic stocking. The swelling of the entire leg was decided, but never extreme. The woman's general health has steadily improved and she walks without discomfort.

ETIOLOGY.

What caused the phlebitis in this and similar cases? The field of operation was clean throughout; the epigastric vessels were not injured; the wound was not stretched, and there was no undue or uncomfortable pressure of the abdomen by bandage. Traumatism, therefore, must be excluded. With our present knowledge, pathogenic bacteria, it seems to me, must be excluded. The phlebitis may have been caused by some albuminoid substance or toxin in the blood, as suggested by Welch and later by Meyer and others, but it would be exceedingly difficult to account for the presence of infective bacteria in such a case. It is admitted that whatever damages the endothelium of the veins, whether trauma or a morbid state of the blood, favors the formation of thrombi. In my experience the patients are usually anemic, with feeble circulation. I believe that a condition of the blood exists previous to operation which predisposes to thrombophlebitis. This blood state is not always apparent.

In the great majority of cases the veins of the left leg only are affected. Why should a clean operation in the right hypogastrium cause phlebitis in the left leg only? The anatomic arrangement of the blood vessels, I believe, offers the best solution.

Keen, in his "Surgery of Typhoid Fever," states that about three-fourths of the cases are in the left leg (other authorities give a larger proportion). He believes that it is due to feeble heart action and to the mechanical arrangement of the vessels—the passing of the left common iliac vein beneath the right common iliac artery. Haward adds the fact that the left common iliac vein also passes beneath the left internal iliac artery. The typhoid state, however, with its long period of recumbency, high temperature and marked debility is different from that under consideration, yet the peculiar arrangement of the vessels is doubtless a factor to be considered in the development of the disease. The thrombus may be the cause or result of the phlebitis.

It is also conceded by many that some cases are exceedingly difficult of explanation, and, I may add, with our present knowledge impossible of satisfactory explanation.

2. THE JOURNAL A. M. A., Dec. 9, 1905.
3. Hunterian Lectures, "Phlebitis and Thrombosis," Lancet, March 10 and 17, 1906.

SUMMARY OF LITERATURE.

Witzel of Bonn[4] reports three cases that he could not account for following clean appendectomies. He now believes that the condition originates in the epigastric veins and is due to ligation of the epigastric vein and artery during the operation. He therefore would make a more perpendicular incision and would not open the sheath of the rectus muscle, nor ligate the epigastric vessels, nor suture *en masse*.

Stephen Hoffman,[5] in a paper on blood vessel complications in perityphlitis states that thrombosis and embolism are complications of appendicitis, and that thrombosis may be primary in the veins and is not very rare. He notes as a "singular fact" that it most frequently affects the veins of the left side, and suggests the anatomic arrangement of the vessels and pressure as the explanation.

Lennander of Upsala,[6] had five cases following appendectomy. He considers the phlebitis of infectious origin, but states that it need not start from field of operation. He states that the compression by dressings, intestinal intoxication and feeble circulation may be factors.

Lockwood[7] states: "The prognosis of phlebitis is favorable when not complicated with septicemia and pyemia," an admission that some cases are not septic.

Coe[8] speaks of septic crural thrombosis following aseptic celiotomy.

Vander Veer[9] says regarding non-septic phlebitis following abdominal operations that the probable causes are: Traumatism, distribution of veins of left leg and bandage pressure.

Secord[10] of Ontario speaks of thrombosis of femoral veins following aseptic laparotomy.

He says that lessened vascular tension, retarded circulation and dressing pressure are causes. It is not due to infection.

Strauch, of Moscow, (quoted by Secord), says that ether and high pelvis position are causes of femoral thrombosis.

John G. Clark[11] speaks of this form of phlebitis occurring as a sequel to celiotomy. It originates, he says, from a primary thrombus of the deep epigastric vein which is slowly propagated along the vessel until it reaches the external iliac, where it gives rise to retrogressive thrombus of the femoral vein. It is non-infectious and non-traumatic.

Willy Meyer[12] mentions two cases following appendectomy. Both patients were anemic. Intestinal intoxication and sigmoid pressure, he says, may be contributory causes. The condition is of infectious origin, but not necessarily from the field of operation. A letter from Dr. Meyer in June, 1906, reaffirms his belief in infection as a cause.

Edwards[13] speaks of phlebitis, thrombosis and embolism following abdominal and pelvic operations. He declares that the condition is not septic. He believes that it is caused chiefly by suddenly formed clots becoming detached and causing pulmonary embolism and sudden death. It usually occurs in cases of hysterectomy from uterine fibroids.

Maurice Richardson,[14] of Boston, says that this thrombosis of the veins of the left calf may be the result of wound infection, but that such an explanation seems against common sense and experience. The common phlebitis, he believes, occurs most frequently in those patients whose wounds have pursued a uniformly favorable and aseptic course.

At the annual meeting of the American Gynecological Society,[15] May 22-24, 1906, Dr. Joseph Taber Johnson, Washington, D. C., read a paper entitled "Thrombosis and Embolism Following Abdominal Operations;" Dr. Eugene Boise, Grand Rapids, Mich., read a paper on "Postoperative Embolism." In the discussion following Noble, Philadelphia, said that he does not think that sepsis has much to do with the condition; much is yet to be learned about it. There are many factors and trauma plays a part.

Reynolds, Boston, said that he thinks that congestion of pelvic viscera has much to do with thrombophlebitis after operations on these organs.

Currier, New York, declared that we are in the dark as to the exact cause, but believes that patients getting up too soon, say within a week, is dangerous and predisposes to thrombosis.

Watkins, Chicago, said that the evidence is much in favor of infection.

Dührssen, Berlin, thinks it is caused by a blood dyscrasia, not by sepsis.

Edebohls, New York, said that in ten cases none was septic.

Newman, Chicago, said that susceptibility from previous weakness and trauma figure as causes.

J. C. Munro[16] suggests that phlebitis is more common than postmortem statistics indicate. He believes that mild infections do take place from which the patient recovers spontaneously.

C. H. Goodrich,[17] among the causes of femoral phlebitis, mentions infection of the blood clot in or about the superficial or deep epigastric or circumflex iliac veins by attenuated forms of bacteria. In most cases, he says, some trauma to veins is probably a contributing factor. None will dispute that a blood clot, an ideal culture medium, can be infected by a smaller number and less active bacteria than tissues possessing resistive power.

Welch[18] says: "Many of these so-called marantic thrombi are unquestionably of infective origin, and while a more prominent place must be assigned to the action of micro-organisms in the etiology, yet recent attempts to refer all thromboses, formerly called marantic, to the direct invasion of micro-organisms and to phlebitis go beyond demonstrated facts."

Clark and Haward quote with favor von Recklinghausen's whirlpool theory or eddying of the blood as predisposing to blood clot, maintaining that this result is favored by the cross currents under varying pressure and at different angles. When at or near a common receptacle, the influence may be marked, and if the heart action is slow and feeble, it may be influential in the cause of thrombus. This is but another factor in the consideration of the anatomic plan of the vessels in influencing the formation of thrombi.

From the teachings of Virchow that the thrombosis was the primary essential condition and due to slow, feeble circulation, we have witnessed in more recent years the growth and ascendency of the theory of infectious origin, due largely, as shown by Professor Welch, to the investigations of European pathologists.

Much has been written in the last few years about the blood plates, whether they were degenerated blood corpuscles or inherent constituent elements of the blood. In the Hunterian lectures on phlebitis and thrombosis, previously alluded to,[2] considerable space is given to this discussion. The investigations of Eberth and Schimmelbusch and others established their prominent influence in coagulation, while Bizzozero and Osler confirm their existence as independent elements in solution with the blood corpuscles.

According to different investigators, from Osler, Brodie and Russell, to Professor Kemp, they number from 250,000 to 778,000 to the cubic millimeter. Their marked influence in the formation of blood clot seems established. Whatever retards or slows the circulation, regardless of local and constitutional conditions, disturbs the normal relation of the elements to each other and

4. Centrblb. f. Chir., July 15, 1906.
5. Deutsch. Ztschr. f. Chir., vol. lxxxi.
6. Centrlbl. f. Chir., 1899.
7. "Pathology and Surgery of Appendix," 1901.
8. Medical News, July 1, 1899.
9. American Medicine, July, 1901.
10. Secord: Amer. Gyn., October, 1903, p. 370.
11. "Etiology of Femoral Postoperative Thrombophlebitis," Univ. of Penn. Med. Bull., July, 1902.
12. Annals of Surgery, May, 1901.
13. International Clinics, vol. iv, Series 15, 1906.
14. "Certain Unavoidable Calamities Following Surgical Operations," Boston Med. and Surg. Jour., Dec. 1, 1904.
15. THE JOURNAL A. M. A., June 9, 1906, page 1791.
16. "Lymphatic and Hepatic Infections Secondary to Appendicitis," Annals of Surgery, November, 1905.
17. Brooklyn Med. Jour., June, 1905.
18. Allbutt's System of Medicine, vol. vi, page 173.

to the endothelium. In chlorosis and other conditions of deficient oxygen in the blood, the platelets increase, leave the center of the current and, with the corpuscles, collect in the periphery of the stream, and with their known property of agglutination, attach themselves to each other and to the endothelium and form the nucleus of a clot. Prof. James H. Wright,[19] of Boston, has discovered the origin of the blood plates in the giant cells of the bone marrow and of the spleen. Constitutional conditions affecting the chemistry of the blood and local condition of the vessels will produce the same results, especially with a feeble or retarded heart action. Under such conditions the fibrin ferment it is claimed, is evolved and the tendency to thrombus favored.

The calcium and sodium compounds and thyroid extract are administered to increase the agglutinative conditions of the blood and to shorten the period of coagulation in order to prevent hemorrhage during and after operation. This is perfectly consistent with Professor Wright's (London) observations that citric acid causes decalcification of the blood, and that the blood of the femoral veins, containing more carbonic acid, is more susceptible to coagulation than the sinuses, at the base of the brain.

With the foregoing data and general observations, we ought to be better prepared to form an intelligent opinion in a given case as to the causes and blood conditions which favor thrombophlebitis after operations. Because few patients die, the pathologist has not had a good opportunity to do his best work. The influence of trauma as a factor is emphasized by such men as Lennander, Witzel, Thienhaus, Vander Veer, Baldy, Goodrich, and most of them, at least, recommend the Trendelenburg position as a preventive measure in addition to precautions, which all prudent surgeons recognize, against the infliction of needless force and trauma during the operation.

OPINIONS OF SURGEONS AND PHYSICIANS.

In my examination of the subject I sent the following inquiry, in June and July, to about 30 distinguished surgeons and physicians: "What in your opinion is the chief cause of phlebitis following abnormal operations (occurring usually from the tenth to the twentieth day) with little or no fever, an aseptic field and prompt healing of the wound? Interval appendectomy is a good illustration," I quote from replies received:

Prof. W. H. Welch: "In my article on 'Thrombosis' in Allbutt's System of Medicine, (Vol. VI), I discuss the view which has many adherents, particularly in France, that many of the thrombi formerly regarded as marantic or bland are really instances of infective phlebitis, and the discussion applies to the class of thrombi following abdominal operations, to which you refer, although surgical thromboses, as such, are excluded from the scope of my article, which relates to internal medicine. The etiology of the class of thrombi which you are considering is not well understood. The opportunities to make bacteriologic examinations of such thrombi are infrequent, but, as I state in my article, in a number of cases bacteria have been found in such thrombi, and this raises some presumption in favor of their infective origin. Still, I do not consider such an origin as by any means established. The absence of evidences of infection in the seat of operation does not preclude the possibility of the infectious origin of the thrombi, nor does the bland course of the thrombotic process exclude this. The symptoms (fever, rapid pulse, etc.), in some of the cases are suggestive of infection, and on the whole, I incline to this hypothesis, which, in at least some instances, seems established.

J. C. Bloodgood, Baltimore, does not consider the causation definitely settled, but thinks the origin infectious. It is much more frequently observed in anemic and chlorotic individuals.

James M. Finney, Baltimore, believes that there is no one specific cause but several contributory causes, the most important of which is the condition and chemistry, of the blood itself. Add to this slight traumatism to the iliac vein, usually the left, through pressure from fecal impaction in rectum, metal retractors, rough use of the rectal tube, etc., and you have the factors necessary for its production. Infection may play a remote part, but the real change, whatever it may be, is, in his opinion, a chemical one, in the cases under consideration.

Robert Abbe, New York, says: "The cause of postoperative femoral phlebitis is probably not different from that following typhoid or other fevers—retarded current in the left femoral, which shows in three-fourths of the cases, due to pressure on the right common iliac artery on the vein which crosses beneath it at the pelvic brim. This, plus the bacterially infected blood, even in wounds healing by primary union without apparent infection, causes colonization on the vein wall when the current is slowed down."

Clement Cleveland, New York, formed the opinion long ago that even the mildest forms of phlebitis are due to slight sepsis, and later experience has confirmed this view. He is unable to account for it in any other way.

Robert T. Morris, New York, thinks that the phlebitis is due to infection by way of the peritoneal lymphatics, but none of the writers has given a very clear view of the process. The matter needs explanation. He has had two cases of left and two of right iliac and femoral phlebitis following appendectomy without other infection in the cases.

John B. Roberts, Philadelphia, is inclined to attribute the condition to a mild form of infection of the veins, and the same thing, he says, is probably the cause of venous thrombosis that occasionally occurs as a complication of typhoid fever.

John B. Deaver, Philadelphia, says: "Infection is the cause."

Joseph Price, Philadelphia, says: "Stump or pedicle operations and local infection. The appendix operation is the perfect type to demonstrate that it is septic, because nearly all are imperfect operations. A dead ligature in a dead space undermined, with one-sixth or one-eighth of the appendix not removed. Those who cut out the stump and close the hole never have phlebitis."

J. M. Baldy, Philadelphia, thinks that it is impossible to tell the chief cause. Sepsis is the cause in only a few cases. Traumatism is a factor. Pressure on vein by retractors may be a potent cause, and anemia due to loss of blood, and also to disorganized blood from other causes, are also factors.

L. S. McMurtry, Louisville, says that he has had three cases following nonseptic abdominal operations. In each case the left leg only was affected. He regards the etiology as probably a mild local infection causing inflammation of the vein, and formation of a clot, but is not clear as to the cause and pathology.

Maurice Richardson, Boston, says that he has seen a great many cases of the kind, and is strongly inclined to the view that this mild phlebitis is no evidence of sepsis. It occurs in the cleanest cases attended by a slight rise in temperature. Little, if any, disability follows. Sometimes he has thought the trouble came from keeping the patients very still. He has never seen pulmonary embolism in these cases. He has no idea as to the cause of the phlebitis.

Arthur T. Cabot, Boston, says that he has not been able to discover any explanation for the cases of phlebitis under consideration. He has several times seen cases of what seemed to be phlebitis in the deep veins of the calf of the leg after operations, and thought they might be in some way due to pressure of the calf from the Trendelenburg position, but confesses he has no very good reason for holding this opinion.

N. Senn, Chicago, says that his experiments on animals several years ago tended to show that thrombosis is not likely to occur without infection. Developing after an operation, it is

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suggestive of a mild form of infection, or in consequence of an enfeebled circulation. He has not observed it in appendix operations.

J. B. Murphy, Chicago, does not believe that phlebitis is more common following abdominal than operations on other parts of the body. He thinks it is a stasis caused from placing the patient in the recumbent position.

A. J. Ochsner, Chicago, says that two explanations seem somewhat reasonable, though he is entirely unable to state the reasons for the occurrence of the disease. One is given by Witzel, and the other is that the disease usually occurs in patients whose blood is not quite normal.

W. J. Mayo, Rochester, Minn., believes that there are several factors in the etiology. Phelebitis does not occur as a rule unless the peritoneal cavity is opened, thus arousing a process which results in some blood change, and this is instrumental in causing phlebitis. The recumbent position is a factor. While formerly common in interval appendectomies, when patients were in bed two or three weeks, it is now uncommon since patients are allowed to get up in six days, and are instructed to move their limbs freely. On this account the Mayos aim in abdominal cases to get the patients up in ten or twelve days.

Roswell Park, Buffalo, N. Y., in the cases under consideration, thinks that the early condition is one of endophlebitis, which may be of toxic origin, or an indistinct mild form of sepsis. The handling of viscera or clamping of vessels by forceps may commence the thrombotic process. While microorganisms are more or less at fault, it does not follow that the condition is necessarily other than thrombus produced by chemical rather than biochemical means. He believes that a mild type of thrombophlebitis is the not infrequent sequel of abdominal operations, and that it is due to chemical agencies in the blood rather than to active germ action, and that it is mildly, if at all, infective. The condition, at times, is most difficult of explanation.

Arpad G. Gerster, New York, states that the question is not so simple as many would imagine. Several factors are to be considered. In some faultless cases the thrombosis is due to a ligated pelvic vein, in which the thrombosis extends to the femoral; but the condition of the blood and the endothelium of the vessels has some direct influence on the thrombotic process. Another factor is inaction due to bed rest, and the low blood pressure due to lack of physiologic stimulus to the heart. The coagulability of the blood and the state of the endothelium he thinks are most important.

Joseph G. Blake, New York, believes that the condition is due to an extension of a phlebitis in the neighborhood of the wound across the abdomen through a transverse vein of the abdominal wall which empties directly into the external iliac vein. The original phlebitis he thinks is probably due to injury to the walls of the vein through traction.

A. W. Vander Veer, Albany, N. Y., says that he is not clear as to the pathology. In the plainest cases traumatism is produced which extends to the venous trunk. The clumsy use of retractors will produce injury which is reflected to the veins. Just why a case of appendicitis, complicated with a lesion of right ovary and tube, should cause a phlebitis of the left leg, he is at loss to explain.

CONCLUSION.

My belief is that the cause of phlebitis of the epigastric, iliac, femoral, saphenous and tibial vessels, occurring late after a perfectly aseptic operation, with prompt healing of the wound, is probably not septic.

We do not know the specific cause or causes. The cases, of which a good illustration is reported, with our present knowledge, are very difficult of satisfactory explanation.

In the absence of convincing or pathologic evidence, and in the face of profound surgical skepticism, it is not rational, in the best and cleanest days known to surgery, to assume an infection that is devoid of satisfactory evidence.

The condition which causes the thrombus, before the inflammation, or of the phlebitis, preceding the thrombus, is the vital question. It is exceedingly difficult, in fact, quite impossible, to reconcile the facts with the recumbent position, the simple ligature or injury of small veins, in a distant field, often on the opposite side of the body, though admitting that infection need not come from the site of operation.

I believe that there is a general condition affecting the composition of the blood, that may, and often does, exist before operation, which is an essential factor in the cause of thrombophlebitis in these cases. A careful scrutiny of patients should be made before operation, and an examination of the blood should be made before and after operation. This on a fairly liberal scale, in my opinion, would reveal interesting and useful information, and shed some light on a puzzling subject.

If the patient is chlorotic and anemic, or if the conditions are not satisfactory, the health should be improved, if delay is permissible, by the administration of iron and acids, and metabolism improved by a suitable food supply, while specific or constitutional affections should, as usual, receive just consideration.

A SERIES OF MEDICAL AND SURGICAL AFFECTIONS TREATED BY ARTIFICIAL AUTOINOCULATION

ACCORDING TO WRIGHT'S THEORY OF OPSONINS.*

A. P. OHLMACHER, M.D.
DETROIT.

It is somewhat surprising, in view of the remarkable character of the results which have been obtained, that an appreciation of the full value of Sir A. E. Wright's theory and practice is not widely disseminated among the medical profession of the United States. Rarely, indeed, in these days of easy publicity, does a scientist effect an accomplishment of far-reaching humanitarian importance without its immediate and extensive proclamation throughout the civilized world. In fact, such proclamation, especially of discoveries in the healing art, is too often premature and over-colored, with the result that disappointment and pessimism are aroused and progress impeded. With Professor Wright, however, the situation is quite the opposite. He has for four or five years patiently worked along a new line in experimental medicine, has evolved an attractive working hypothesis, the application of which has performed veritable miracles in the cure of certain diseases, and all of this with scarcely a ripple of sensation and almost without the knowledge of the medical profession outside of the originator's immediate circle. For Wright is accomplishing results that are the surprise of those who have been so fortunate as to witness them, and the comparatively uncommon worker who is, by previous training, competent to apply Wright's methods in practice, and who has employed them, is also performing therapeutic feats of a most surprising kind. To a large degree this situation has resulted from the principal investigator's natural modesty, and in part has been due to the conservatism of the medical profession, representing the reaction after a number of sensational but unproductive announcements. But the day when Professor Wright's achievements are to remain hidden has passed in England, and in the United States we are on the verge of a similar

* Read by invitation before the Chicago Medical Society, Jan. 16, 1907.

illumination, thanks largely to the visit which Wright recently paid to America and also to the remarkable eulogy accorded his work by our most distinguished medical scientist, Professor William H. Welch. It is, therefore, a pleasure of more than ordinary degree that I feel in bringing to the American medical profession an account of what it has been my lot to effect in applying, in a small way, the methods of Wright to the treatment of certain medical and surgical affections.

It is not my purpose to go into theoretic or technical details, for I am convinced that the appreciation of Wright's conquests has been retarded in the United States by the publication of several papers too severely and too needlessly abstruse, with the result that a comparatively simple theory and the excellent results of its application have been rendered confusing and unattractive to the average medical man. To the physician or surgeon whose interest lies in learning as speedily as possible what can be accomplished by Wright's methods in curing disease it matters not how opsonins may be related to agglutinins, bacteriolysins or precipitins, or whether Ehrlich's side chain hypothesis can be made elastic enough to reconcile opsonins with amboceptors, complements, complementoids, or what not. In fact, because of the industrious quest of Ehrlich's hypothesis by workers in all parts of the civilized world during the last six to eight years, with the voluminous and increasingly complex literature, and the failure to obtain out of all this work an additional remedy for a single infectious disease, the work-a-day physician has lost interest in the theoretic controversies of biologic medicine. But the fashion of theories and standards is on us, and to-day no one proposes a new kind of biologic therapy without formulating some theoretic basis as its foundation, or advocates a biologic remedy without proposing a method of standardizing it. Unfortunately, too, the theory and standard are often as fallacious as the treatment is inefficient. It may or may not have been some such consideration as this which led Wright to propound his theory of opsonins to explain the beneficial results following his use of small, infrequent bacterial inoculations to cure the corresponding subacute or chronic infection, and perhaps he may have laid more stress on the opsonic index and the exact enumeration of the bacteria in a given dose than further experience will warrant. Be that as it may, a most attractive theory has been propounded, an ingenious technic for testing this theory has been perfected, and with what has already been accomplished in successful therapy no intelligent physician will fail to acquaint himself. Accordingly, I shall digress sufficiently to lay before you a brief, and I hope comprehensible, outline of the theory of opsonins and of opsonic therapy.

THE OPSONIC METHOD.

By the ingenious methods of Wright and his associates, Leishman and Douglas, it is possible to study experimentally, outside of the living body, the action of the blood serum called opsonic. If one takes fresh blood of man or any other common mammal and washes the corpuscles free from serum, the polymorphonuclear leucocytes will not ingest such pathogenic bacteria as the pyogenic cocci, colon bacilli, or tubercle bacilli when these are mixed in the form of a fluid suspension with the washed corpuscles and incubated 15 to 30 minutes. If, however, to this mixture of washed corpuscles and bacteria blood serum be added, the phagocytic leucocytes at once begin to take up the bacteria, and, in proportion to the opsonic power of that particular serum against that particular kind of bacterial parasite, the number of bacteria engulfed by a given number of leucocytes in a certain period of incubation will vary. In virtue of its opsonin, which sensitizes the bacteria so as to allow the white blood cells to take them up by phagocytosis, the blood serum produces the effect just described. Against a given pathogenic microbe, as, for example, the *Staphylococcus aureus*, the serum of one individual tested by a refinement of the method just outlined will permit the leucocytes to take up an average number of the cocci, the number representing this individual phagocytic index for staphylococcus. The relation which exists between the phagocytic index of one individual and that of others presumably normal constitutes the so-called opsonic index. This opsonic index assumes practical importance because it seems to bear a definite relation to an individual's resistance against a given disease-producing microbe. With subacute and chronic infections the opsonic index is usually low for the corresponding bacterial species.

In view of the practical feature of this report which aims to present the actual clinical results which I have obtained in applying Wright's principles to the treatment of certain diseases, it will not be possible to enter further into the matter of technic by which opsonic determinations are actually made. For information on this head and for much enlightenment concerning the treatment of certain infections on the basis of the opsonic theory the full and free publication which Wright and his associates have given, during the last three years, in the Proceedings of the Royal Society, the London *Lancet* and the *British Medical Journal* should be consulted.

I have said that the opsonic theory as a theory may, like other hypotheses in biologic science, be open to question, and it would be unwise to assert that it may not be considerably modified or even overthrown by accumulating experience. Had it been the promulgation of this theory of immunity alone, with its interesting laboratory test, that ended Wright's labors, there would be less excuse for bringing it to the attention of practicing physicians. In reality, however, the *practice* on which the theory of opsonins may be said to rest is the truly valuable contribution which Wright has given to the medical world. While it may still be too early to predict the ultimate bounds which will surround opsonic therapy, there is evidence that we have come into possession of a method of treatment which opens another of the several important eras in the conquest of human disease by medical science.

OPSONIC THERAPY.

Wright has shown that by artificial bacterial autoinoculation one may increase resistance against the corresponding organism to a point at which healing of infectious processes occurs. The bare fact that immunity could be induced or heightened by the use of pathogenic bacteria or their products had been established and extended from the day of Pasteur's epoch-making studies in the bacteriology of infectious diseases; and from Buchner's day it was shown that the blood serum bore an important part in the body's combat against microparasites; while the rôle of the living body cell was demonstrated by the brilliant Metchnikoff. But figuratively it remained for Wright to so modify the vaccine of Pasteur as to arouse in the serum of Buchner a substance which prepared the disease-producing microbe for destruction by the phagocyte of Metchnikoff; thus

bringing to practical humanitarian usefulness the laboriously studied theories of three pioneers in biologic therapy.

In practice Wright employs small, infrequent injections of what he calls by the rather unfortunate name "vaccine," to treat the corresponding bacterial disease. His vaccines consist of an ascertained number of a suspension of bacteria which have been heated just sufficiently to kill them, and which are preserved by a chemical germicide. The vaccines are "corresponding," that is, they consist of a germ similar in species to the one exciting the disease, as *Staphylococcus pyogenes aureus* for furuncle; or, better still, they are autogenous, that is, prepared from the patient's own lesion; hence it will be seen that the practice is really a kind of artificial autoinoculation by which the microbe causing the disease is reintroduced by laboratory art. Compared with all similar essays in the direction of artificial bacterial inoculation two features of Wright's methods are prominent—the comparatively small dose and the long interval between inoculations. This may be illustrated in the case of tuberculous affections where the standard vaccine is Koch's new tuberculin (T. R.) consisting of the suspended, triturated bodies of the tubercle bacilli, the average dose 1/1000 mg., and the ordinary interval between treatments 7 days. Compare this with the gigantic dose of previous tuberculin inoculations and their daily or twice daily repetition and you will see the radical and seemingly very fundamental nature of Wright's departure.

Now by following the events subsequent to the introduction of a bacterial vaccine by opsonic evaluations, Wright and his associates show that at first a fall of opsonic index, or so-called "negative phase," ensues; to be followed by a rise, the "positive phase," generally lasting 5 to 7 days; then comes another gradual recession in the opsonic index. Symptomatically these fluctuations are also demonstrable in the constitutional depression and the aggravation of the local lesion during the negative phase, and the improved general tone and healing in the local lesion of the positive phase. An imperative rule in opsonic therapy is to not reinoculate during the negative phase, and the time of election for a new treatment is just after the positive phase begins to fall. The harm of tuberculin injections of previous practice is explained by Wright as the production of a marked negative phase by too large a dose, and its continuous aggravation by too rapid a repetition. One can verify this, and often to his sorrow, in other infectious conditions by giving too large a dose of the bacterial vaccine or by pushing a small dose too rapidly.

With this much by way of imperfect introduction to the principles and technic of opsonic therapy, I shall endeavor to elucidate further points by illustrations in actual cases treated by me or by those with whom I am associated in private or hospital practice.

PERSONAL CLINICAL EXPERIENCE.

A recital of the practical therapeutic results which have followed in various cases that I have personally treated by bacterial inoculation must necessarily take the nature of a summary, as the detailed description of any one of the more interesting cases would make a report of considerable length. Before discussing the groups into which, for convenience, I have assigned the cases, I wish to say that, while the taking of the opsonic index has not been neglected, it has not been carried out in any case with the regularity that would obtain were my situation more favorable and assistance in this tedious work available. As a matter of fact I have had to rely quite largely on the clinical manifestations as a guide to the repetition and size of dose. With the control afforded by the more systematic opsonic determinations by which a falling of resistance is often shown before symptoms indicate it, I believe the good effects of this treatment could be increased.

STAPHYLOCOCCUS INFECTIONS.

Acne and Furunculosis.—In the first group I shall include the diseases caused by pyogenic staphylococci and mention primarily acne. In my own practice I have treated two aggravated cases of acne vulgaris of one and two years' duration, respectively, in young men. In each the staphylo-opsonic index was low at the outset of treatment and was progressively raised by the injection at intervals of 7 to 10 days of staphylococcus vaccine, in one case being the *Staphylococcus pyogenes albus* from the patient's own lesion, to be followed later by a mixture of the *albus* and *citreus,* and in the other the mixture of *albus* and *citreus* also from the individual's own pustules. In the first patient eight injections have been given and a steady improvement amounting to almost complete cessation of the acne has resulted. All the old brawny, sluggish, indurated nodules have ceased to appear, the seborrhea has given way to a smooth, soft, pliable, non-oily skin, and with these local changes the patient's tone has improved, an excellent appetite has replaced a capricious one, and a gain of five pounds in weight in six weeks has followed, all of this with no other local or general measures. In the second case six treatments have changed a most repulsive case of indurated acne of the face into one with sparing superficial pimples, with a disappearance of black-heads and grease, to be replaced with a soft, clear skin, giving the whole face a new and clean complexion. This patient now seems to have reached Wright's "high tide of immunity," for improvement has been steady since the last injection, three weeks ago, and the previously fluctuating opsonic index now has a high and sustained point. Several patients with acne, including one with an obstinate acne rosacea, have been treated with vaccines of my preparation, and under my direction, by a prominent local dermatologist, with complete recovery or very marked improvement in all. It was this specialist who first called my attention to the simultaneous improvement in the seborrhea during the progress of the acute treatment, a most surprising feature of which is the spontaneous bodily extension of the comedones after an inoculation.

Impetigo.—In one case of obstinate impetigo the *Staphylococcus pyogenes aureus* and a streptococcus were obtained by culture from one of the pustular lesions. The staphylo-opsonic index was low, that for the streptococcus was the same as of a control serum. One dose of the staphylococcus vaccine brought the pustules to a standstill, a dose of streptococcus vaccine was given at the end of a week, with the result that the impetigo absolutely ceased. In a second case of recurring impetigo contagiosa of 14 months' duration, two injections of the autogenous *Staphylococcus pyogenes aureus* have brought the pustules to an end.

Chronic Furunculosis.—My first patient with furunculosis was my 2-year-old baby girl in whom a staphylococcus infection of mosquito bites on the scalp produced a series of large pustules, one after another of which I incised until the procedure became a severe trial for the patient and myself. For six weeks these boils continued to appear on the scalp, and when I finally concluded to

use the vaccine which had been prepared from the *Staphylococcus pyogenes aureus* isolated from one of the early furuncles, one large boil was present on the side of the head, two on the abdomen in sites not previously the seat of mosquito bites, and one very large so-called "blind boil" on the pudendum. All these were incised and the first and only dose of vaccine injected. The incised boils suppurated freely the next day and the child was quite indisposed, but on the second day the suppuration ceased. On this day, too, a bright lively revival of spirits and improved appetite appeared and continued, and from that day, last midsummer, to the present the child has had no sign of a furuncle.

Another case of chronic generalized furunculosis of two years' duration has been brought under control by three weekly doses of *Staphylococcus pyogenes aureus* vaccine, the first from a stock vaccine and the two later of autogenous origin. The disappearance of the last boil has now occurred and I predict that one or two more injections will effectually and finally rid this man of his trying affliction. Similarly a case of recurring furunculosis in a physician has been brought to a standstill by two artificial autoinoculations of the *Staphylococcus pyogenes aureus.*

Furunculosis and Axillary Adenitis.—Another of my early staphylococcus cases was one in which a boil appeared on the anterior border of the left armpit, and was fully developed when I first saw the patient, an adult man. Incision and careful antiseptic dressing were practiced, but in two days a second boil appeared in the lower portion of the axilla, accompanied by an enlargement of several contiguous axillary glands. In spite of careful surgical treatment, the infection of the glands progressed until two had suppurated and had been incised; then a well-developed axillary adenitis with the usual mass of tender, indurated, confluent glands, developed, and it was clear that the issue was a total extirpation of the infected mass or intervention with inoculation. The first dose of a stock *Staphylococcus pyogenes aureus* vaccine brought the adenitis to a check and three glands hastened to suppuration, became superficial, fluctuated, and were easily evacuated. A second dose after six days, this time of the autogenous aureus vaccine, promoted the resolution of the infected glands, and at the end of the second week, when the third and last dose was given, the whole indurated mass had melted away and a complete and perfect recovery was effected—all of this with the patient reporting personally for treatment and losing but three days in his employment.

Palmar Abscess.—Closely allied to the foregoing in its surgical significance was a case of palmar abscess in a man who reported to his physician with the hand and forearm greatly swollen; a deep abscess in the center of the palm and much constitutional disturbance. Two injections of antistreptococcic serum had produced no further effect than to lower the temperature, and the attending physician made a small incision in the palm and brought me some of the pus in a sterile syringe. Immediate smears from the pus showed staphylococci, and the first dose of stock *Staphylococcus pyogenes aureus* vaccine was given to the medical attendant who injected it. A halt in the process began in 24 hours, and in three days the improved general condition was accompanied by a reduction in the swelling. From the pus *Staphylococcus pyogenes albus* in pure culture was obtained and a vaccine prepared; on the fourth day a dose of this was injected. The improvement became more pronounced, the suppuration more superficial, and an incision 1½ inches in length, extending the original one, was all that was required. Two more doses of the autogenous vaccine at intervals of a week completed the perfect cure of this infection, with solid closure of the incision, a hand of its original functional perfection, and a splendid gain in general health and spirits. The full significance of this and the preceding result will be best appreciated by the surgeon of large experience who knows palmar abscess and axillary adenitis of the type I have described from the standpoint even of the best aggressive surgery.

Staphylococcic "Psoriasis."—Before dismissing this necessarily hurried account of staphylococcic infections I wish to recount one of my latest experiences which is so unusual in its results as to call for a special and detailed account, although it comes in a group of results all of which are truly astonishing, judged by any previous therapeutic standard. I refer to a case of what was designated by a prominent Detroit dermatologist, who had the woman under treatment twelve of the eighteen months of the disease, as psoriasis, but which I am now prepared to pronounce a most extraordinary staphylococcic dermatosis. At the time I first saw the patient, some five weeks ago, at least one-third of the entire cutaneous surface of the body was involved and of so aggravated a type as to make her a physical and nervous wreck. The immense confluent lesions on the arms, legs, breast, back, sides and buttocks were slightly raised above the unaffected skin, of a dull red color, and covered with large thick scales reminding one of a piece of plate gelatin. Each night, and often twice daily, the woman annointed herself with olive oil and went through the trying operation of pulling off these scales, which, she asserted, would cover a newspaper, and which often left bloody, denuded surfaces exposed. A constant sensation as of a flame against the skin was suffered, and often an intolerable itching, so that sleep of more than an hour's duration had not been possible for months; and with no relief during the day it is little wonder that the victim was on the verge of complete collapse when I first saw her. Movement of the arms or walking were most painful because of the cracking and erosion of the crusted limbs. Besides these confluent areas there were numerous discrete lesions on the limbs, trunk, face, and scalp. The remaining skin was dry and harsh and did not perspire. The hair was coarse, dry and lusterless.

With the evident subacute inflammatory nature of the affection as a ray of hope, I excised completely, with aseptic precautions, one of the discrete lesions on the arm and planted it on glycerin agar. The next day I was rewarded with a pure culture of *Staphylococcus pyogenes aureus* against which I found the patient's opsonic index low. A vaccine from this culture was at once prepared and injected. That same night the patient slept two hours consecutively and the skin broke out in a mild perspiration. The next day the burning abated at intervals and the itching lessened. At the end of the first week a remarkable improvement in the diseased skin was apparent and the physical and mental status of the woman greatly bettered. On the occasion of the last treatment, just six weeks from the time of the first examination and the event of the fifth injection of the staphylococcus vaccine, both the confluent and discrete lesions of the arms and legs had given way to a normal-looking skin covered with delicate fluffy scales, and the only evidence of the original fearful condition were two narrow, slightly elevated, reddened crescents under the breasts. The woman, whose appetite had at once improved, had been placed on a generous mixed diet to

replace the restricted one previously prescribed, she had gained five pounds in weight, her strength and spirits had revived, she slept comfortably all night, her skin had become moist, soft and pliable, and her hair soft and oily and with renewed luster. One additional point of interest was elicited in the previous history—that is, that the forerunners of the dermatosis were a boil on the wrist, one behind the ear, then a crop about the genitals, to be followed first by the discrete and later by the confluent dermatosis.

COLON BACILLUS INFECTION.

Cystitis and Pyelonephrosis.—My primary experience in treating a colon bacillus infection by artificial autoinoculation has been most satisfactory. The patient was a retired physician afflicted with a chronic tabetic neurosis and consequent palsy of the bladder, followed by infection of the bladder and the usual ascending urinary infection, producing a cystitis and pyelonephrosis of three months' duration. The ordinary lines of medical treatment had failed to bring relief, and the patient was bedridden, emaciated and profoundly septic, with the usual train of anorexia, constipation, vomiting and prostration. The urine was foul in odor and loaded with thick, greenish-yellow, gelatinous pus. Chills, a daily temperature of 103 F. and profuse night sweats were established. The right kidney was plainly palpable and on its ventral surface one could feel a mass as large as a lemon, tender and apparently representing the dilated urinary pelvis. According to precedent, such a case would, of course, be pronounced as incurable, and except from the standpoint of endeavoring to make the remaining existence endurable would be abandoned. From the pus in the urine I obtained abundant bacilli in smears and a pure culture of what was identified as colon bacilli of the usual type. Against this bacillus the patient's phagocytic index was one-third less than that of the phagocytic index of a normal person's serum; that is to say, his opsonic index was about two-thirds the normal. The usual preparation was made from the bacillus obtained from the urine, and artificial autoinoculation at intervals of five to ten days, five doses in all, increasing in size, was practiced. The opsonic index rose in a pronounced manner, but as a strongly agglutinative effect also developed in the patient's serum I am inclined to question the validity of some of the later opsonic determinations, for it was quite impossible to check the rapid clumping of the bacilli by the serum and their consequent ingestion *en masse* in the leucocytes. This, however, is less significant than the improved local and constitutional conditions of the patient. After the first inoculation his temperature never rose above 100 F. After three days his chills and night sweats ceased, not to reappear. The character of the urine changed during these first few days, the pus became less abundant, thinner and not so coherent, and the foul odor disappeared. From the first injection the improvement has been progressive except for several gushes of putrid pus, evidently representing the emptying of pyelonephric abscesses. The right kidney speedily lost its tenderness and the tumor on its surface disappeared. It is now seven weeks since the last treatment. The patient is about the house, his appetite is excellent and he has gained in weight, strength and spirits. The urine at the worst contains but a small amount of thin pus, and ordinarily is clear. Indeed, were it not for his neurosis with its painful crises he would be pronounced as practically recovered. We have stood in readiness to give additional inoculation, but since the last one the gain has been so steady as to make further treatment superfluous. Evidently what Wright calls the "high tide of immunity" has been established.

Mastoid Fistula.—In a case of mastoid fistula of three months' duration, a single injection of a vaccine from a colon-like bacillus isolated from the pus effected complete and permanent closure of the fistula in a week.

PNEUMOCOCCUS EMPYEMA.

A single example of empyema is all that I have thus far had opportunity of treating, and were it not that the result duplicates those reported by Wright and his followers in a number of similar cases, including some advanced to the chronic unhealing stage, I would not at present report it. The patient was a 7-year-old girl who had a severe atypical pneumonia, with lysis at the end of a week. For ten days after the temperature remained between 99 and 100 F. and then rose to 102 F., accompanied with some dyspnea and pain in the right chest. Three days after this rise in temperature the attending physician found dulness in the right lower chest and on exploratory aspiration obtained a thick pus in a sterile glass syringe. On my suggestion the poor practice of making a very small intercostal incision and inserting a very small drainage tube was at once instituted, with the evacuation of some eight ounces of thick pus, but no expansion of the lung, evidently indicating a sacculated empyema. The next morning the pus was brought to the laboratory, smears showed a diplococcus, and by the following day I had isolated the pneumococcus, from which a vaccine was prepared. Three days after obtaining the pus I visited the patient and gave the first inoculation of the autogenous vaccine. I found her much emaciated, weak, fretful, with a hectic look, a temperature of 100 F., pulse 120, and a profuse discharge of thick pus into the voluminous dressing. Four days later the attending physician reported a pronounced improvement, the appetite had returned, strength increased, the discharge steadily diminished until it was scanty and thin, sero-purulent in character, and the small drainage tube had been pushed out by the expanding lung and could not be re-inserted. On the fifth day only a small quantity of serum oozed from the opening against which the pleura had appeared. A second inoculation was then made. On the seventh day the wound had entirely closed, the little girl was eating splendidly and had gained in flesh and strength, with no pain or fever. That gain has been uninterrupted to the present time, five weeks since the second treatment. In other words, a perfect recovery of a sacculated empyema was effected in seven days by small puncture, evacuation of the bulk of pus, small drainage, and artificial autoinoculation with the infecting pathogenic bacterium. And from what I saw of this case I am of the opinion that the still more unwafrantable practice (according to previous standards) of aspiration of the pus would have been fully effective when reinforced by opsonic therapy.

TUBERCULOSIS.

Because of some delay in obtaining Koch's tuberculin R., which at present forms the standard vaccine for treating tuberculous diseases, my efforts in this direction have not yet progressed to a point at which more than a preliminary report can be made. In fact, it has been impossible, from lack of time and the opportunity of making the proper opsonic tests, for me to go extensively into this very inviting field. In two cases negative results

followed my use of tuberculin injection after Wright's dosage; one of advanced pulmonary tuberculosis and extensive intestinal ulceration where, after a gain in appetite and improvement in the febrile curve following the first injection, the patient progressively declined to the end, with no gain from the following two injections. Another case diagnosed as probable abdominal tuberculosis, but more likely an example of a malignant abdominal neoplasm, was, because of the low tuberculo-opsonic index, tentatively treated with a combination of tuberculin and colon bacillus vaccine. A short and very surprising gain in general and local conditions gave way and death followed in a month.

Urinary Tuberculosis.—A case of urinary tuberculosis in which the pneumococci and tubercle bacilli are present in the pus has been treated with mixed tuberculin and pneumococcus vaccine for some two months, with progressive betterment, a gain in weight and lessened pyuria.

GONORRHEAL AFFECTIONS.

With one class of diseases I believe, from all I can learn, that my experience has been unique, that is, with the affections caused by the gonococcus. If my information is correct Wright has steadily predicted that gonorrheal infection would yield to opsonic therapy, but because of the difficulty in making a suitable vaccine he had not, at least to last midsummer, advanced in this line of work. Perhaps, with some element of chance, it has been my fortune to obtain a strain of gonococcus from which a standard or stock vaccine was prepared which has given some very encouraging results in the treatment of certain forms of gonorrheal infection. I say particular strain because several other strains rendered available to me on account of my special work on the gonococcus, including in two cases the autogenous ones, that is, those from the patients' own secretions, have failed to give the satisfactory results obtained by the one I am using.

Balanoposthitis.—My first test was made early last summer in a case of balanoposthitis and gonorrheal urethritis of eight months' duration, with the usual picture of an immensely swollen and phimosed foreskin and a thick scar-like preputial orifice. On the second day following an injection of the gonococcus preparation the swelling began rapidly to subside and by afternoon the patient reported with the foreskin retreated, the glans clean and free from redness or pus, and the urethral discharge much diminished. He stated that this was the first glimpse of the glans penis that he had had for eight months. Four succeeding injections brought a check to the urethritis and at last account the patient was well.

Double Epididymitis and Perineal Fistula.—Another example of the rapid, specific action of the gonococcus vaccine on the inflammatory complications of gonorrhea was a case of urethritis of six weeks' duration, complicated with a proctitis of three weeks' standing, a double epididymitis for eight days and a forming periurethral abscess. A more miserable individual than the young man with these lesions and a two hours' torture after each urination, a severe backache and general depression would be hard to find. Within twenty-four hours from the first injection of the gonococcus preparation all pain on urination and all backache had left, the swelling in the epididymal tissues had subsided so rapidly as to cause a "crawling sensation" from the retracting dartos, the periurethral abscess had broken, leaving a perineal urinary fistula. Following these events the patient's appetite returned and became insistent and he began a gain in flesh that has to the present time increased his weight beyond anything heretofore normal, amounting to 9 pounds since the inoculations were begun. Four subsequent injections at weekly intervals have been given, and no other treatment; the proctitis disappeared during the first week, absolutely no induration remains in either epididymis, the perineal induration has disappeared; the urinary fistula has closed, and the urethral discharge has almost completely subsided.

Subacute Epididymitis.—Within the week I have treated by the same method a left-sided gonorrheal epididymitis of a month's duration, as large as a hen's egg, much indurated and exceedingly tender. In twenty-four hours after inoculation the mass had begun to reduce in size, was softer and much less tender. In forty-eight hours all the swelling of the epididymis had subsided except an induration limited to the caput, and by the third day this had departed and the patient's general condition was so excellent that he was discharged from the hospital and will report personally for further inoculation.

As to the significance of these results which I believe are but typical of what can be accomplished in subacute and chronic gonorrheal inflammations by the use of an effective gonococcus vaccine, comment is unnecessary among physicians who have handled these complications by any previous method, including even the use of passive hyperemia or puncture in the treatment of gonorrheal epididymitis.

Gonorrheal Rheumatism.—That a further field of great usefulness is in store for opsonic therapy in gonorrhea is my belief from my experience in treating two cases of gonorrheal polyarthritis, or so-called gonorrheal rheumatism. In one of these patients the infection had existed four months and involved several joints. Progressive betterment of the arthritis with departure of the swelling, pain and immobility was effected by four injections when the patient considered himself cured and has no longer reported. In another instance the man was almost a helpless cripple with a gonorrheal arthritis of four years' duration involving both wrists, both shoulders, one elbow and one knee, all the affected joints being immovable or of very restricted mobility. The usual symptoms of pain, sleeplessness, cold sensation, cold sweats and physical and mental depression were in evidence. Five injections at weekly intervals have worked a most surprising improvement in this man's condition. Practically all swelling and thickening of the joints have subsided, and all are now freely movable, the range being normal except for the left wrist. Along with the gratifying local improvement there has been a practical cessation of joint pain, good restful sleep undisturbed by chilly sensations or sweats, a progressive improvement in appetite and a steady gain in weight, and with all this a revival of spirits and a physical activity very pleasant to witness.

Gleet.—In one case of long-standing gleet the discharge ceased apparently permanently after three injections; in another after four weekly doses the diffusely purulent urine has cleared, the threads have almost vanished, and in both these patients a greatly improved general tone with increased appetite and weight has followed the treatment. In my only case of subacute uncomplicated urethritis I have not succeeded in entirely checking the discharge, though this patient, too, has gained in flesh to exceed his usual weight in health.

Ophthalmia, Conjunctivitis, and Vaginitis.—In two cases of gonorrheal ophthalmia, two inoculations in each instance sufficed, with the coincident local treatment, to effect a perfect recovery, which was hastened in a manner very surprising to those who witnessed it. So also an example of gonorrheal conjunctivitis of several months' duration has responded with complete disappearance of all conjunctival injection during the positive phase, to reappear as soon as this stage subsides, making the case one of the most striking symptomatic demonstrations of opsonic fluctuation that I have seen. Gonorrheal vaginitis in two little girls yielded to two inoculations each which reinforced the irrigation treatment.

In emphasizing my unusual experience in handling gonorrheal diseases I would lay particular stress on the fact that no other therapeutic measure was used in any of my personally treated cases except the stretching of a stricture in the worst example of gonorrrheal arthritis. Because of my inconvenient situation it has not been possible to bring to the aid of the inoculation such other procedures as irrigation, sounding or what not, commonly practiced in the treatment of gonorrhea, and, of course, for the best results, particularly for handling the urethral discharge, such measures probably should be used in conjunction with the gonococcus vaccine. Nor have I been able to make a sufficient number of opsonic indices to furnish this additional guide in opsonic therapy. Still it is clear that therapeutic effects have been obtained entirely beyond anything heretofore possible, and these by the use of small, non-painful, simple subcutaneous injections at weekly intervals.

CONCLUSION.

In dismissing this account of my personal experience with Wright's method of treatment I will say that if the therapeutic results which have been presented were based solely on my own work I would not have the courage to make them public at this time, when but six months have elapsed since my first clinical experiments began. But because they duplicate the published reports made by Wright and his followers in England in connection with the various groups of infections except the gonorrheal, and since they correspond with the reports brought to the United States by those who have visited Wright's laboratory, I am somewhat less diffident.

Moreover, I believe the adoption of opsonic therapy in this country depends on the promulgation among practicing physicians of the actual clinical achievements, and this as speedily as accurate observation shall warrant; and it is my conviction that a method of practice with such vast humanitarian possibilities should be brought into the possession of the medical profession without delay.

Finally, from what I have already seen, which is tempered by a rather extensive experience in private and institutional medical work, I am prepared to assert that with the proper artificial autoinoculation we can obtain constitutional and local improvement in many subacute and chronic infections entirely beyond anything previously possible in medicine. And I am personally assured that in these bacterial inoculations we possess therapeutic agents of a specificity and potency exceeding anything heretofore employed in the treatment of disease except possibly the antitoxin of diphtheria.

[FOR THE DISCUSSION SEE PAGE 639.]

ACCURATE MODIFICATION OF MILK, SIMPLE AND PRACTICABLE.*

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Accurate modification of milk involves the calculation of definite percentages of fat, mixed proteids, caseinogen, etc., for mixtures of cream and milk and of cream and milk and whey. The necessary operations are expressed most conveniently in algebraic equations.

Of the merits of percentage modification, the American method of preparing cow's milk for the infant, it is sufficient to say that it provides the instrument of precision; for this reason alone, if there were none others, it is desirable that it should be established on the mathematical principles which it involves and on which it depends. If formulas are employed to determine the required quantities of materials, they should accord with these principles and with the chemical facts; they should be accurate, also, and adequate. None of the published formulas meets these requirements; and generally accepted statements on the subject of the calculation and the preparation of percentage mixtures are, in certain important respects—practically important—misleading: As the formulas to be presented conflict with, or disregarded some of them, their integrity can not be established without reference thereto; moreover, in the absence of error or misconception, there would be no reason—no excuse—for further contribution to this part of the subject.

It is generally understood, for example, that a variety of creams, creams of different strengths, is essential to accurate and adequate modification of milk. What are known, respectively, as 8 per cent., 10 per cent., 12 per cent., 16 per cent. and 20 per cent. cream are commonly employed; directions are given, accordingly, for obtaining these creams by gravity, together with tables that show their proteid and sugar percentages, which are different for each variety of cream, and are differently given by different authors; other tables that show the limitations in the percentages of fat and of proteids that are obtainable by the use of creams of different strengths; others that show the percentages of the food-elements that are reciprocally obtainable, and still others by which the choice of the creams to be employed for particular modifications is directed. Under these conditions, confronted at the outset by these tables, the apparent necessity for the use of a variety of creams, ranging from 8 per cent. to 32 per cent., of which each must be computed by a slightly different equation, it is not surprising that one unfamiliar with the percentage method and mathematical formulas, should find accurate modification impracticable in advance.

But while all these factors may be employed very few of them are essential, either to the statement of the problem, or to its solution. A variety of creams is not only unnecessary, but undesirable, because of the confusion to which it gives rise; and of all the facts recorded in these tables, as factors, knowledge of two only is required, for practical purposes: (1) the analysis (the fat, proteid and sugar percentages) of cow's milk, (2) how to obtain adequate cream, a single variety of adequate cream, by gravity.

Of the published formulas, the series proposed by Dr. Westcott[1] in his admirable monograph are the only ones

* Read in the Section on Diseases of Children of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

1. Scientific Milk Modification, Internat. Clinics, Series 10, vol. III.

for which accuracy and completeness are claimed. But in the derivation of these formulas the principle on which the calculation depends is not recognized, or is not regarded; and the assumptions on which the working equations are based are untenable. The formulas are inadequate also: Westcott's equations for combining cream and whole milk depend on equality of the fat and proteid percentages of the milk; but, according to recent analyses, the mixed milk from a herd of cows contains 3.50 per cent. proteids and 4 per cent. fat; these equations fail accordingly for standard milk; and, of course, for all milk of which the fat and proteid percentages are not precisely equal. In the equations for cream and fat-free milk it is assumed that the proteid percentages of whole and fat-free milk are equal, which, since cream has a lower proteid percentage than milk, is mathematically impossible. His formulas for computing whey-cream mixtures are based on the proposition that the proteid percentage (?) of a mixture of cream and whey is equal to the proteid percentage of the cream plus proteid percentage of whey employed; but the former refers to mixed proteids, the latter refers to whey proteids alone. While together they make up the percentage of proteids in a mixture, they can not be added together to make a "proteid percentage." No provision is made for the computation of definite percentages both of fat and of (mixed) proteids; except for the small percentage of fat that may be contributed by the whey, the percentages of each that may be obtained depend on the strength of the cream employed, which is computed for a definite percentage of fat, or for a definite percentage of proteids (?). The number of modifications obtainable is limited, therefore, according to these formulas, by the number of creams available, and the equations are inadequate.

The formulas for combining cream and whole milk first proposed by Dr. Westcott "depended on the calculation of the amount of combined cream and milk required to give the desired proteid percentage of the mixture," the factor assumed to represent the "average proteid percentage of mixed cream and milk" depending on the strength (fat percentage) of the cream employed. These equations also are at fault; as will be shown in the succeeding analysis, the proteid percentage of the mixed, or mixture of, cream and milk required to yield a particular modification does not depend at all on the fat percentage of the cream, but is the same always, whatever the strength of the cream employed may be.

In the following analyses, and in the equations derived therefrom, it is assumed that whole milk contains 3.50 per cent. of proteids, 4 per cent. of fat, and 4.50 per cent. of sugar, unless otherwise specified. As far as common factors are employed, the usual symbols and equivalents have been adopted, with certain additions:

Q = quantity of food desired.
F = desired percentage of fat.
P = desired percentage of proteids.
S = desired percentage of sugar.
a = the fat percentage of cream.
b = the proteid percentage of cream.
c = the sugar percentage of cream and of milk.
a′ and b′ denote, respectively, the fat and the proteid percentage of the milk employed.
X = *appropriate cream.*
B = the proteid percentage of *appropriate cream.*
R = the ratio $\frac{F}{P}$.

The formulas herein presented are based on four especial considerations or propositions:

1. Since cream has a lower proteid percentage than milk, fat-free milk must have a higher proteid percentage than milk, which is essentially 4 per cent. cream; and on chemical analysis it appears, accordingly, that whole (4 per cent.) milk having a proteid percentage of 3.50 the fat-free milk has proteid percentage of 3.60. The loss of 4 per cent. fat, therefore, involves the gain of one-tenth of 1 per cent. of proteids, and, of course, conversely; whence the principle may be deduced that for each 4 per cent. gained in fat-value, cream loses one-tenth of 1 per cent. in proteid-value; or, for each gain of 1 per cent. in fat, loses .025 per cent. in proteid-value (and in sugar-value[2]).

2. The ratio of the fat percentage to the proteid percentage of a particular cream is the ratio of fat percentage to proteid percentage that is obtained by diluting the cream with water; thus, the fat percentage of 16 per cent. cream is 16; the proteid percentage is 3.20; the ratio, 16 to 3.20 is 5 to 1; if 16 per cent. cream is mixed (diluted) with an equal part of water, the mixture will contain 8 per cent. fat, 1.60 per cent. proteids; the ratio, 8 to 1.60 is 5 to 1.

3. A cream of which the ratio of fat percentage to the proteid percentage (a to b) is precisely the ratio of the desired fat percentage to the desired proteid percentage (F to P) is what may be termed the *appropriate cream* in each case, since by itself, without the addition of milk, it is capable of furnishing both the required quantity of fat and the required quantity of proteids. The ratio, F to P, therefore, indicates the *appropriate cream* in each case; thus, for a 20 oz. mixture to contain 4 per cent. F and .80 per cent. P, 16 per cent. cream is appropriate, because the ratio, 16 to 3.20 is the same as .80 the ratio of 4 to .80 and 5 oz. of 16 per cent. cream will supply both the .8 oz. of fat and the .16 oz. of proteids desired. Thus:

5×16 per cent. = .80 oz. fat.
5×3.20 per cent. = .16 oz. proteids.

The ratio 4 to .8 or 5 to 1 indicates 16 per cent. cream.

4. Theoretically, there is an infinite number of creams and an infinite number of ratios of fat to proteids; theoretically, therefore, there is *appropriate cream* for every ratio F to P that is attainable; but practically it is impossible to obtain directly, either by the centrifuge or by gravity, *appropriate cream* for all these ratios; it is necessary, therefore, to mix cream of known percentages with milk of known percentages, but in each case the mixture of cream and milk that is capable of furnishing the required percentages represents, is, essentially, *appropriate cream* and has the same fat, the same proteid and the same sugar percentages:

For example:

	Fat percentage.	Proteid percentage.
1 oz. cream	16	3.20
1 oz. of milk	4	3.50

Together are equal to 2 ounces of 10 per cent. cream:

$\frac{16 + 4}{2}$ = 10 per cent. F.

$\frac{3.20 + 3.50}{2}$ = 3.35 per cent. P per cent. cream).

2. The sugar percentages of cream and milk obey the same laws that govern the proteid percentages.

In the application of these principles, two sets of formulas have been derived: General formulas of universal application and working formulas which provide specifically for the use of materials that are generally available for purposes of home modification.

SERIES I. GENERAL FORMULAS. MIXTURES OF CREAM AND MILK.

Modified milk is always diluted milk; rather, diluted cream, and, as we have seen, the ratio F to P indicates the cream to be employed—the *appropriate cream* in each case.

In the computation of percentage mixtures it is necessary to determine in the first place the quantity of *appropriate cream* that is required to obtain the desired mixture; either the fat percentage, or the proteid percentage may be taken as the basis for this calculation. The latter has been preferred, because the proteid percentages of the creams ordinarily indicated do not differ very much. Obviously, the proteids in the *appropriate cream* (B × X, or B X) must equal the whole quantity of proteids desired (Q × P, or Q P); that is, Q P = B X; and the quantity X required must depend on its proteid percentage, B. When cream is *appropriate*, the ratio a to b equals the ratio F to P; that is, $\frac{a}{b} = \frac{F}{P} = R$: whence a = b R. In creams of which the ratio $\frac{a}{b}$ is below 7.50 (creams below 23 per cent. about), the proteid percentage decreases with the increase in the fat percentage in such proportion that three times the ratio $\frac{a}{b}$, plus 1 is in some cases precisely and in all other cases almost precisely equal to b times the ratio; that is, $\frac{3a}{b} + 1 = \frac{ba}{b}$; and, since cream loses .025 per cent. of proteids for each 1 per cent. gained in fat, .025 $\left[\frac{3a}{b} + 1\right]$ equals the proteid percentage lost in each case, which, deducted from the proteid percentage of fat-free milk, would equal the proteid percentage of the cream; but the proteid percentage of fat-free milk represents the loss of 4 per cent. of fat; wherefore, taking the proteid percentage of whole milk as the basis for the calculation, .025 $\left(\frac{3a}{b} + 1 - 4\right)$ deducted from the latter equals the proteid percentage of the cream in each case; that is, $3.50 - .025\left[\frac{3a}{b} + 1 - 4\right]$, or, $3.50 - .025\left[\frac{3a}{b} - 3\right] = b$; whence, since $\frac{a}{b} = R$ when cream is *appropriate*: (B) $3.50 - .025\ (3R - 3) = B$.[3]

The proteid percentage of each variety of cream may be determined in the same way; that is, since cream loses .025 per cent. of proteids for each 1 per cent. gained in fat; and, since the proteid percentage of whole milk represents the gain of 4 per cent. of fat: $3.50 - .025\ (a - 4) = b$.

But in order to obtain *appropriate cream*, it is usually necessary to combine cream of known percentage with milk of known percentages; X, therefore, must be equal to the quantity of cream and milk required; that is, X = C + M, whence X − C = M. Any variety of cream that is adequate and any adequate milk may be employed; but in all cases, the cream and milk together must supply both the required quantity of fat and the required quantity of proteids; that is,

(1.) a C + a′ M = Q F, and

(2.) b C + b′ M = Q P; by substituting for M its equivalent X − C, and transposing, equation (1) becomes

Q F = a C + a′ (X − C), or

Q F = a C + a′ X − a′ C =

Q F − a′ X = (a − a′) C, whence

$$\frac{QF - a'X}{a - a'} = C \text{ (cream)}$$

By transposition equation 2 becomes: $QP = bC + b'M = \frac{QP - bC}{b'} = M$.

Five per cent. of lime water is required to make the mixture alkalin in reaction:

$$\frac{Q \times 5}{100} = \text{Lime water.}$$

Since the sugar percentages obey the same laws that govern the proteid percentages, they may be computed in the same way—taking the sugar percentage of whole milk as the basis for the calculation; accordingly, (E) $4.50 - .025\ (3R - 3) = C$. In the case of cream and milk of the standard analysis, the sugar percentage equals the proteid percentage plus 1; that is, B + 1 = C.*

It may be desirable to know the strength of cream that is necessary in order to obtain a particular modification (percentages). *Appropriate cream* is always the weakest adequate cream; that is, the weakest cream that may be employed in combination with milk to obtain the desired percentages in each case. As we have seen, $\frac{3a}{b} + 1 = bR = a$; when cream is appropriate $\frac{a}{b} = R$, wherefore, (A) 3 R + 1 = a (adequate cream).[4]

The *limitations* in the percentages of fat and of proteids obtainable by the use of a particular variety of cream are shown by the ratio a to b in each case; thus, when cream is diluted with water, the ratio a to b determines the ratio F to P; that is, $\frac{F}{P} = \frac{a}{b} = R$, whence, R P = F and $\frac{F}{R} = P$; any ratio $\frac{F}{P}$ below the ratio $\frac{a}{b}$ may be obtained by combining the cream with milk.

If the milk in use is of other than the standard analysis, the coefficient of proteid loss, and the ratio $\frac{a}{b}$ must be determined, and the working equations modified accordingly. The proteid and sugar percentages of cream in each case depend, of course, on the analysis

3. When R (the ratio F to P) exceeds 7.50, the equation must be modified:

$3.50 - .025\ (3R - 4) = B$. when R is between 7.50 and 9.

$3.50 - .025\ (2R \times 5) = B$, when R exceeds 9.

Practically, a ratio F to P as high as 7.50 is never indicated in mixtures of cream and milk; equation B, therefore, meets every requirement in practice, and is employed accordingly in the general formulas, subject to the exceptions noted. The same remarks apply to the equation for finding the sugar-percentage of *appropriate cream*. For certain ratios the percentage B thus determined is absolutely accurate; and in any case the error is very small, seldom more than a few thousandths of 1 per cent.

The fat and proteid percentages of *appropriate cream* (A and B) for all attainable ratios may be arrived at with absolute accuracy by the following calculations, B having been determined approximately:

$$\begin{array}{ll} & B\ R = a \\ (C) & 3.50 - .025\ (a - 4) = b \\ & b\ R = A \\ & 3.50 - .025\ (A - 4) = B \end{array}$$

These operations are repeated until the desired ratio is established; that is, until $\frac{A}{B} = R$. Many ratios are practically unattainable on account of the decimals involved. The general equations (in which p = the coefficient of proteid loss) are: BR = a; b′ − p (a − a′) = b, etc.

* When R exceeds 7.50 the equation is modified.

4. When R exceeds 8, 2 R + 9 = a.

of the milk from which it is derived; but, in some of the published tables of analyses, these percentages are given apparently without reference to the analysis of the milk in use; for example, 12 per cent. cream from 4 per cent. milk (4 per cent. P) may be grouped with 16 per cent. cream from 3.50 per cent. milk. The tables of different authors do not agree, therefore, and for purposes of computation are unreliable for the most part. If the milk in use is deficient in fat, the strength of gravity cream therefrom is reduced in each case. In these cases, the coefficient of proteid loss is increased.

The fat and proteid percentages of the milk and the proteid percentages of a single variety of cream being known, other values (as factors) may be computed. The general equations are:

$$\frac{b' - b}{a - a'} = P$$

$$(C)\quad b' - p\,(a - a') = b$$

$$(D)\quad \frac{b' + a'p - b}{p} = a$$

The accuracy of the working formulas to be derived for the use of milk and cream of other than the standard analysis depends on the accuracy of the percentage B; for the ratios commonly required, this factor may be determined, approximately, by the formula

$b' - p\,(3\,R - 2) = B$; or

$b' - p\,(3\,R - 3) = B$

(depending on the value of p); and accurately for all ratios by the calculations that have been indicated.[3] For practical purposes an "average" percentage may be used.

Equations that provide for the use of whole milk containing 4 per cent. of proteids, and of milk deficient in fat are included in the series of working formulas (Series iv, B).

Mixtures in Which P Equals, or Exceeds F.—Appropriate cream for these modifications is, of course, separated milk, since there is no cream of which the proteid percentage equals, or exceeds the fat percentage. Any separated milk in which the ratio of fat to proteids is not above the ratio $\frac{F}{P}$ is adequate; and cream of any strength, even 4 per cent. milk, may be combined with it.

The use of fat-free milk simplifies the computation of these mixtures, which, in this case, may be made by the special formulas for cream and fat-free milk. If separated milk is employed, its fat percentage should be computed (preferably), and the required quantities of cream and milk determined by the general formulas (Series 1). In these cases it is unnecessary to compute the percentage B, which, for standard milk, must always be between 3.50 and 3.60; the mean percentage 3.55 may be assumed accordingly.

SERIES II. SPECIAL FORMULAS. CREAM AND FAT-FREE MILK.

These equations depend on the same principles and are derived in the same way as the equations in the general formulas, but in this case it is unnecessary to find the quantity X, or the percentage B, since all the fat is supplied by cream, which is computed directly. Thus:

1. $\frac{Q\,F}{a} = C$ Cream.

$Q\,P = b\,c + b'M$ whence

2. $\frac{Q\,P - b\,c}{b'} = M$ (Milk).

3. $\frac{Q\,S - c(C + M)}{100} = S$ (Sugar).

All mixtures to be prepared with cream and fat-free milk may be computed by these equations, if preferred.

SERIES III. GENERAL FORMULAS. WHEY-CREAM MIXTURES.

Three varieties of whey are recognized, depending on its source and the way it is prepared: 1. Whey from whole milk, separated with the least possible disturbance of the curd. 2. Whey from whole milk, separated after "thorough agitation" of the curd and whey. 3. Whey from fat-free milk.

In the text these varieties of whey are referred to, respectively, as, (1) Whole whey (which contains .32 per cent. F, .86 per cent. P, 4.80 per cent. S). (2) Two per cent. whey (which contains 2 per cent. F, .97 per cent. P, 4.80 (?) per cent. S). (3) Fat-free whey (which contains trace of F, 1 per cent. P, 5.00 per cent. S).

By the use of the whey-cream mixtures very low percentages of caseinogen with relatively high percentages of whey-proteids and of fat may be given. With low percentages of caseinogen, not above .50, a maximum percentage of whey-proteids of from .75 to .90, depending on the variety of whey employed, may be obtained. In the succeeding analysis, and in the equations derived therefrom, additional symbols and equivalents are employed as follows:

cas = desired percentage of caseinogen.
WhP = desired percentage of whey-proteids.
a″ b″ c″ = respectively, the fat, proteid and sugar percentages of the whey in use.
F′ = fat percentage supplied by cream (and milk).
P′ = proteid percentage supplied by whey.

The calculation of whey-cream mixtures requires division of the proteids into caseinogen and whey-proteids, of which the former is furnished by the cream (and milk) alone. Each must be computed separately. The computation in detail may be made in different ways; the simplest, on the whole, requires the conversion of the desired percentage of caseinogen (cas) into the percentage of mixed proteids which it represents, at the outset.

According to chemical analysis, the percentage of whey-proteids in cream and milk is equal to one-fifth of the percentage of caseinogen (about); a given percentage of caseinogen (cas), therefore, represents a percentage of mixed proteids one-fifth greater, that is $cas + \frac{cas}{5} = P$. This simple calculation having been made, the equations for finding the required quantities of cream and milk are substantially the same as the corresponding equations in the general formulas (Series 1), and are derived in the same way.

The ratio F′ to P indicates *appropriate cream* in each case, and the percentage F′ depends, of course, on the kind of whey employed. The fat percentage of whole whey is equal to 37 per cent. of its proteid percentage (.32/.86). The fat percentage of 2 per cent. whey is equal to twice its proteid percentage (about) 2x.97; accordingly,

F — .37 P′ = F′ when whole whey is used.
F — 2 P′ = F′ when 2 per cent. whey is used.
F = F′ when fat-free whey is used.

The percentage of proteids furnished by the whey (P′) must be equal to the desired percentage of whey-proteids less that contributed by the cream (and milk): that is, $WhP - \frac{cas}{5} = P'$.

The necessary operations are expressed in equations as follows:

1. $\text{Whp} - \frac{\text{cas}}{5} = \text{P}'$

2. $\frac{\text{QP}'}{.86}$ = whole whey; $\frac{\text{QP}'}{1}$ = fat-free whey, or 2 per cent. whey.

The required quantity of whey having been computed, it is simpler to determine the percentage F′ by the following equation, which expresses the fact that the required quantity of fat is equal to the fat in the cream and milk plus the fat in the whey employed; that is,

$\text{QF} = \text{QF}' + \text{a}''$ whey, whence $\frac{\text{QF} - \text{a}'' \text{ whey}}{\text{Q}} = \text{F}'$;

the ratio $\frac{\text{F}'}{\text{P}}$ indicates *appropriate cream* $\frac{\text{F}'}{\text{P}} = \text{R}$

The equations for cream and milk, respectively, are the same as the corresponding equations in the general formulas (Series 1), except that the former provides for the use of whey containing fat:

$\text{QF} = \text{a C} + \text{a}' \text{M} + \text{a}''$ whey, whence, since $\text{X} - \text{C} = \text{M}$,

$\frac{\text{QF} - (\text{a}' \text{X} + \text{a}'' \text{ whey})}{\text{a} - \text{a}'} = \text{Cream}.$

$\frac{\text{QS} - (\text{c X} + \text{c}'' \text{ whey})}{100} = \text{Sugar}$

RECAPITULATION.

SERIES I.—MIXTURES OF CREAM AND MILK. GENERAL FORMULAS.

1. $\frac{\text{F}}{\text{P}} = \text{R}$

2. $3.50 - .025\ (3\ \text{R} - 3) = \text{B}$

3. $\frac{\text{QP}}{\text{B}} = \text{X}$

4. $\frac{\text{QF} - 4}{\text{a} - 4} = \text{Cream}$[5]

5. (a) $\text{X} - \text{C} = \text{M}$. (b) $\frac{\text{QP} - \text{bC}}{3.50} = \text{M}$[6]

6. $\frac{\text{Q} \times 5}{100} = \text{Lime water}$

7. $\frac{\text{QS} - \text{cX}}{100} = \text{Sugar}$

SERIES II.—CREAM AND FAT-FREE MILK. SPECIAL FORMULAS.

1. $\frac{\text{QF}}{\text{a}} = \text{Cream}$

2. $\frac{\text{QF} - \text{bC}}{\text{b}'} = \text{Milk}$

3. $\frac{\text{QS} - (\text{cC} + \text{aM})}{100} = \text{Sugar}$

SERIES III.—WHEY-CREAM MIXTURES. GENERAL FORMULAS.

1. $\text{cas} + \frac{\text{cas}}{5} = \text{P}$

2. $\frac{\text{Q}\left(\text{WhP} - \frac{\text{cas}}{5}\right)}{\text{b}''} = \text{Whey}$

3. $\frac{\text{QF} - \text{a}'' \text{Whey}}{\text{Q}} = \text{F}'$

4. $\frac{\text{F}'}{\text{P}} = \text{R}$

5. $3.50 - .025\ (3\ \text{R} - 3) = \text{B}$

6. $\frac{\text{QP}}{\text{B}} = \text{X}$

7. $\frac{\text{QF} - (\text{a}'\text{X} + \text{a}'' \text{Whey})}{\text{a} - \text{a}'} = \text{Cream}$

8. $\frac{\text{QP} - \text{bC}}{\text{b}'} = \text{Milk}$

9. $\frac{\text{QS} - (\text{cX} + \text{c}'' \text{Whey})}{100} = \text{Sugar}$

SERIES IV.—WORKING FORMULAS.

In practice, the use of the general formulas is very seldom necessary; every mixture of cream and milk, and, with very few if any exceptions, every whey-cream mixture that is indicated may be computed with substantial accuracy by the working formulas.

For the mixtures commonly required, the maximum error in the results obtained by these equations is five one-hundredths of 1 per cent. of fat, or of proteids (according to the equation employed for finding the required milk) and for the greater number of modifications required it is between one and two hundredth of 1 per cent.

Any varieties of cream and of milk that are adequate may be employed. Of the creams generally in use and readily obtainable by gravity, both 16 per cent. and 20 per cent. cream are adequate: every mixture of cream and milk, with a few possible exceptions, and there are very few, if any, every "whey-cream" mixture that is indicated, may be obtained by combining 16 per cent. or 20 per cent. cream[7] with milk, or with whey, or with milk and whey. Both of these varieties of cream are well adapted for purposes of home modification. The former has the special advantage that it is always readily available in sufficient quantity.[8] On the whole, it is probably the best selection that can be made. The use of whole milk simplifies the preparation of the food; and it is more constant in composition (percentages) than that separated, or fat-free milk obtained by gravity. The working formulas provide accordingly for the use of 16 per cent. cream and whole milk.

Whatever variety of cream is employed, the full quantity obtainable by gravity from a given quantity of milk should be removed (preferably the separated milk should be discharged by a siphon) and well mixed before any part of it is used in the preparation of the food.

5. If other than 4 per cent. (F) milk is in use, substitute its fat percentage for the factors 4 and its proteid percentage for the factor 3.50.

6. When the percentage B is computed accurately the equations (a) and (b) in No. 5 for finding the required quantity of milk are precisely equal.

7. A mixture of the top 6 oz. of a quart of 4 per cent. milk, "set" 8 hours or longer, represents 16 per cent. cream, of which the top 4 oz. (mixed) is 20 per cent. cream. Four (4) ounces of 20 per cent. cream may be obtained from a quart of 4 per cent. milk "set" 4 hours (Rotch).

8. Six ounces of 16 per cent. cream in combination with whole (4 per cent.) milk will furnish sufficient fat for the daily ration of the infant at all ages, presuming that the usual, or "average" mixtures are employed. This statement is based on the feeding-chart issued by the Walker-Gordon Milk Laboratory.

as the surface cream is always very much richer than other portions of it.

The working equations are based on the consideration that *appropriate cream* for the mixtures (ratios) usually to be employed is between 5 + per cent. and 10 per cent. cream, of which the proteid percentage is between 3.46 + per cent. and 3.35 per cent.; the mean percentage, 3.40 is taken accordingly to represent the "average" percentage B for these ratios, and the general equation $\frac{Q\,P}{B} = X$ becomes $\frac{Q\,P}{3.40} = X$. Sixteen per cent. cream has a proteid percentage of 3.20.

3.50 per cent. — .025 (16-4) = 3.20 per cent. (b).

The fat in the cream (16 C) plus the fat in the milk (4 M) must equal the required quantity of fat (Q F); and the proteids in the cream (3.20 C) plus the proteids in the milk (3.50 M) must equal the required quantity of proteids; that is,

(1) Q F = 16 C + 4 M; and
(2) Q P = 3.20 C + 3.50 M

Substituting the value X — C for M in equation (1), it becomes Q F = 16 C + 4 X — 4 C, whence

$$\frac{Q\,F - 4\,X}{16 - 4} = \text{Cream.}$$

(a) X — C = Milk, and, since Q P = 3.20 b + 3.50 M,

$$\text{(b)}\ \frac{Q\,P - 3.20\,C}{3.50} = \text{Milk.}$$

When the percentage B is accurately determined, equations (a) and (b) for finding the required quantity of milk are precisely equal. The error involved in the use of an "average" factor B affects either the fat percentage alone, or the proteid percentage alone, according to the equation employed for milk; equation (a) (X — C) determines the fat percentage of the mixture accurately; by the use of equation (b) the proteid percentage is correctly obtained. Generally the latter is the more important; but for the mixtures commonly required the error is so small that the simpler equation X — C yields satisfactory results.

The sugar percentage of cream and milk is equal to the proteid percentage plus 1; accordingly C = 3.40 + 1. or 4.40 per cent.; and $\frac{Q\,S - 4.40(C + M)}{100} = \text{Sugar.}$ The quantity of sugar to be added is usually very nearly equal to 5 per cent. of the quantity of food to be prepared. The fat percentage of mixtures of 16 per cent. cream and whole milk may be decreased, or increased, without materially affecting the proteid and sugar percentages, simply by changing the relative qualities of the cream and milk employed. Of the mixtures ordinarily prescribed (quantities and percentages) each ounce of cream and milk exchanged decreases (or increases) the fat percentage from .40 to .60 per cent.

Denoting the quantity (in ounces) of cream and milk exchanged by the symbol y, the fat percentage obtained is determined by the equation: $\frac{Q\,F \pm 12\,y}{Q} = F.$

SERIES V. WORKING FORMULAS. WHEY-CREAM MIXTURES.

These formulas are for mixtures of 16 per cent. cream, whole milk and fat-free (or 2 per cent.) whey. The ratio of fat to caseinogen in 16 per cent. cream is a little above 6 to 1; 16 per cent. cream, therefore, in combination with fat-free whey is adequate for the greater number of whey-cream mixtures required. The use of 2 per cent. whey as a diluent increases the ratio F to cas obtainable with 16 per cent. cream from 6 to the 1 to 12.8 to 1—with low percentage of caseinogen—not exceeding .50 per cent. While, of course, a larger number of modifications may be made with *appropriate cream* and fat-free whey, the number obtainable with 16 per cent. cream and 2 per cent. whey is large enough to warrant the statement made as to the adequacy of 16 per cent. cream for the preparation of these mixtures. Usually, with low percentages of caseinogen, it is desirable, and, except for the youngest infants, essential (in order to provide for nutrition) to give the highest possible percentage of whey-proteids, which is obtained, of course, by the use of whey as a diluent in place of water. In these cases it is not necessary to compute the whey at all. By the use of fat-free or 2 per cent. whey as a diluent, from .75 per cent. to .90 per cent. of whey-proteids is obtained with low percentages of caseinogen (not exceeding .50).

Since the ratio F to cas in the whey-cream mixtures ordinarily indicated is considerably higher than the corresponding ratio $\frac{F}{P}$ in mixtures of cream and milk, richer creams are required, and the average percentage B is correspondingly lower; but to avoid confusion the factor 3.40 is retained to represent *appropriate cream*. Moreover, the slightly increased error affects only the fat percentage of the mixture, which is comparatively unimportant. For home modification it is probably most convenient to obtain whey from the separated milk (after the removal of the 16 per cent. cream); or to use 2 per cent. whey from whole milk. The former may be regarded as fat-free for purposes of computation.

The equations for finding the required cream and milk, respectively, are the same as the equations therefor in Series iv, except that the equation for cream, No. 4 (b), provides for the use of 2 per cent. whey.

SERIES VI.

This series is for mixtures of 16 per cent. cream and its separated milk, containing 1.23 per cent. F, 3.57 per cent. P, and 4.57 per cent. S.

The term "separated milk" as here employed refers to the milk that remains after the removal of the full quantity of 16 per cent. cream obtainable by gravity from a quart of 4 per cent. milk. This milk, in combination with cream, is adequate for the preparation of all mixtures of which P exceeds, or equals, F, provided the ratio P to F is not above 2.90 (3.57 to 1.23)—practically all mixtures that are indicated; but, except for young infants and for infants with deficient digestive power, is inadequate for the mixtures ordinarily to be employed, for the reason that a sufficient quantity of fat for the daily ration can not be obtained. Equations for the computation of mixtures of which P exceeds (or equals) F are included in the series of working formulas.

SERIES IV (A)—WORKING FORMULAS.

For the use of milk of the standard analysis—16 per cent. cream and whole milk.

1. $\frac{QP}{3.40} = X$

2. $\frac{QF - 4X}{16 - 4} = \text{Cream}$

3. (a) $X - C$; (b) $QP - 3.20C = \text{Milk}$[9] / 3.50

4. $\dfrac{QS - 4.40(C + M)}{100} = \text{Sugar}$

For cream and milk of the standard analysis equations (A), (B), (C), (D), (E), respectively, are:

(A) $3\,R + 1 = a$ (adequate cream)

(B) $3.50 - .025\,(3\,R - 3) = B$

(C) $3.50 - .025\,(a - 4) = b$

(D) $\dfrac{3.50 + 4\,(.025) - b}{.025} = a$

(E) $4.50 - .025 - (3\,R - 3) = C$; or, $B + 1 = C$

SERIES IV (B).

For the use of milk and cream of other than standard analysis.

For milk containing 4.00 F per cent., 4.00 P per cent., 4.50 per cent. S—16 per cent. cream and milk—($p = .03$).[10]

1. $\dfrac{QP}{3.85} = X$

2. $\dfrac{QF - 4X}{16 - 4} = \text{Cream}$

3. (a) $X - C$; (b) $\dfrac{QP - 3.64\,C}{4} = \text{Milk}$

4. $\dfrac{QS - 4.35\,(C + M)}{100} = \text{Sugar}$

For cream and milk of other than the standard analysis equations (A), (B), (C), (D), (E), respectively, are:

(A) $3\,R + 2 = a$ (adequate cream)

(B) $4.00 - .03\,(3\,R - 2) = B$

(C) $4.00 - .03\,(a - 4) = b$

(D) $\dfrac{4.00 + 4\,(.03) - b}{.03} = a$

(E) $4.50 - .03\,(3\,R - 2) = C$; or, $B + .50 = C$

SERIES V. WHEY-CREAM MIXTURES.

Working Formulas.

For combining 16 per cent. cream, whole milk, fat-free, or 2 per cent. whey.

1. $\text{cas} + \dfrac{\text{cas}}{5} = P$

2. $\dfrac{Q\left(\text{WhP} - \dfrac{\text{cas}}{5}\right)}{1} = \text{Whey}$

3.[11] $\dfrac{QP}{3.40} = X$

4. (a) $\dfrac{QF - 4\,X}{16 - 4} = \text{Cream, (with fat-free whey)}$

(b) $\dfrac{QF - (4\,X + 2\ \text{Whey})}{16 - 4} = \text{Cream (with 2\% W)}$

5. $\dfrac{QP - 3.20\,C}{3.50} = \text{Milk}$

6. $\dfrac{QS - 4.40\,(C + M) + 4.80\ \text{whey}}{100} = \text{Sugar}$

SERIES VI (A).

For mixtures in which P equals or exceeds F (16 per cent. cream and its separated milk containing 1.23 per cent. F, 3.57 per cent. P, and 4.57 per cent. S).

1. $\dfrac{QP}{3.55} = X$

2. $\dfrac{QF - 1.23\,X}{16 - 1.23} = \text{Cream}$

3. (a) $X - C$; (b) $\dfrac{QP - 3.20\,C}{3.57} = \text{Milk}$

4. $\dfrac{QS - 4.57\,(C + M)}{100} = \text{Sugar}$

SERIES VI (B).

These mixtures may be obtained also by combining whole milk (4 per cent. cream) with fat-free milk. The equations are:

1. $\dfrac{QP}{3.55} = X$

2. $\dfrac{QF}{4} = \text{Cream (whole milk)}$

3. $X - C = \text{Milk (fat-free)}$

4. $\dfrac{QS - 4.57\,X}{100} = \text{Sugar}$

PERCENTAGE MODIFICATION IN PRACTICE.

The practical objections to this method for home modification may be grouped under three heads: 1. The number of creams required and the consequent confusion both in the computation and in the preparation of percentage mixtures, since each cream must be computed by a slightly different equation, and different instructions must be given in each case for obtaining by gravity the cream to be employed. 2. The difficulty of keeping in mind the percentages that are indicated for the infant at different ages. 3. The number of modifications to be made, and the time and care that must be given in the case of the normal infant in order to meet the requirements according to the feeding charts.

Occasionally objection is made on the ground of expense. None of these objections is valid; and they rest for the most part on difficulties that do not present themselves in practice. As we have seen, a variety of creams is not necessary; 16 per cent. cream (or any

9. By the use of equation (a) for milk, the fat-percentage of the mixture is obtained accurately; by the use of equation (b) for milk the proteid-percentage is accurately obtained.

10. According to published analyses the coefficient of proteid-loss increases with increase of the proteid percentage of the milk.

11. If the ratio $\dfrac{F'}{P}$ exceeds 4, employ $\dfrac{QP}{3.20} = X$.

richer cream) is adequate for all mixtures of cream and milk, and, probably, for all whey-cream mixtures that are indicated; the directions for obtaining by gravity the cream to be employed may be the same always, therefore to be followed throughout the period of substitute feeding; and all mixtures may be computed by a single series of formulas. With a little "practice," the calculation takes hardly more time and less effort than are required to compute a mixture of drugs.

As to the difficulty of remembering the "percentages" that are indicated at different ages, it is not necessary to remember them. Until the child is 10 or 11 months old, at any rate, the ratio of fat to proteids in the mixtures ordinarily to be employed is somewhere between 3 and 1½ to 1; that is, the fat percentage is not more than 3, nor less than 1½ times the proteid percentage (or, the proteid percentage is not less than one-third, nor more than two-thirds the fat percentage). A fat percentage above 4 is not indicated. Since the ratio F to P decreases as the age increases, from 3 to 1½ to 1, one should never be at a loss as to the suitable modification for the infant at any age.

The impression that frequent changes must be made in the quantities of food and in the percentages prescribed is a mistaken one.[12] To be sure, the infant can not be fed properly, as Japan fought her battles in the recent war, by "previous arrangement;" and the physician can not direct the feeding by this, or by any method, without some effort. But, while in the case of the infant with feeble powers of digestion percentage modification gives opportunity for the exercise of great skill in adapting the food to the needs of the individual and to particular conditions, it permits, also, in the case of the healthy child, a considerable degree of routine practice. For example, assuming that the physician directs the feeding from the beginning, the first prescription may call for 16 ounces, 2 per cent. F, 0.70 per cent. P, ten days later the percentages are advanced to 2.50 per cent. F and .85 per cent P; between the third and fourth weeks, the preparation of 24 ounces, 3 to 3.25 per cent. F and 1 to 1.10 per cent. P, is directed, and at the end of six weeks 32 ounces, 4 per cent. F and 1.50 per cent P, is ordered. No further changes may be made until the child is four months old, when 40 ounces, 4 per cent. F and 2 per cent. P, may be prescribed. At the end of the eighth month the quantity of food and the percentages are increased to 48 ounces, 4 per cent. F and 2.50 per cent. P, respectively. In this assumed case, six mixtures have been prescribed, two of them within the puerperal two weeks, another two within the next four or five weeks; the increase in the quantity of food required has been provided for in each instance by the addition of 8 ounces to the quantity previously prescribed, the number of ounces to be prepared having been increased successively from 16 to 24, to 32, to 40, to 48. While each of these quantities is larger than the infant requires at the beginning of the period for which it is employed, the excess represents so little value in cream and milk that the actual waste is very small.

Very little saving is made by the use of fat-free or of separated milk, except for the preparation of whey, since materials sufficient for the preparation of the mixtures ordinarily required for infants above the age of 4 or 5 weeks can not be obtained from a quart of milk. Generally it is best that two quarts of milk should be provided from the outset, one for the supply of the required cream, the other for the supply of the whole milk. Up to the age of 6 or 8 months a pint of milk will furnish a sufficient quantity of the latter. Two quarts of milk a day will not only provide for the infant throughout the period of substitute feeding, but for the infant's family also; that is, the "modified milk" having been prepared, there will be left of the two quarts from 58 ounces (about) of milk, containing 3.33 per cent. of fat, when the child is a month old, to (about) 30 ounces, containing 2 per cent. of fat, when the child has reached the age of 11 months. With milk at 10 cents a quart, the daily cost of the cream and milk consumed by the infant up to the age of about 11 months, ranges from 2 cents at the beginning to 12 cents at the end of the period.

In the use of the percentage method, both in the case of the normal infant in health and of the infant with less than the normal powers of digestion, the limitations in the ratios of fat to proteids compatible with the maintenance of nutrition must be kept constantly in mind. While the infant can not be fed properly by rules, the principle may be laid down that except in certain abnormal, or diseased conditions, mixtures of which the ratio of the fat percentage to the proteid percentage, that is, to the percentage of total proteids, exceeds 3, should not be employed continuously for any length of time at any period, since they do not contain food enough; on the other hand, the use of mixtures of cream and milk of which this ratio is below 1½ taxes the digestive organs needlessly and invites digestive disorders. In whey-cream mixtures containing high percentages of whey-proteids, lower ratios may be employed, though they are seldom indicated.

Substantially every mixture that is required may be obtained by combining 16 per cent. cream, whole milk, fat-free, or 2 per cent. whey; and in practice it is best to make use of these materials only. Whey that is practically fat-free, however carelessly prepared, may be obtained from the milk from which the 16 per cent. cream has been removed. Twenty-six ounces of this milk will yield about 20 ounces of whey, a quantity sufficient for the preparation of any of the whey-cream mixtures that ordinarily are required.

In practice it is seldom necessary to carry the percentage of caseinogen above 1 per cent.; that is, if the infant is able to digest 1 per cent. of caseinogen, together with the associated percentage of whey—proteids, further division of the proteids is not required as a rule.

The fat percentage of the top milk (cream) does not increase materially even if the milk is allowed to "set" long after the cream has risen; the top 6 ounces of a quart of 4 per cent. milk which represents 16 per cent. cream at the end of 8 hours (and the top 4 ounces, which is 20 per cent. cream) will not have increased in fat-value materially at the end of 12 or 14 hours. In the case of 20 per cent. cream the fat percentage increases but 2.5 per cent. in 24 hours.[13] The thickening of the cream is due almost altogether to the growth of bacteria.

If, therefore, a quart of milk is "set" at 7 o'clock in the morning, 6 ounces of 16 per cent. cream,[14] (or 4 ounces of 20 per cent. cream), may be taken therefrom

12. This statement refers to the feeding of the normal infant in health.

13. Holt: "Diseases of Children."

14. The mnemonic "16"—"2" may assist the remembrance of the instructions to be given for obtaining 16 per cent. cream by gravity; thus, 1 quart of milk yields 6 oz. of 16 per cent. cream at the end of 16 ÷ 2 (8) hours; its proteid percentage is 16 ÷ 2 (3.2 per cent.)

at any time after 3 o'clock in the afternoon, and preferably before 9 o'clock in the evening. But, of course, the sooner the cream is removed after the full quantity obtainable by gravity has arisen, the more closely it will represent the desired fat percentage in each case. It appears, therefore, that a single variety of cream, which may be 16 per cent. or 20 per cent. cream, serves every purpose; that the required quantities of cream and milk for all the mixtures ordinarily required may be computed by a single series of equations; that for the normal infant but few modifications need be made, the percentages that are indicated at different ages being readily determined by the ratios of fat to proteids required, without having reference to the feeding chart; that the simple instructions to be given for obtaining by gravity the cream to be employed are the same in all cases, to be followed throughout the period of substitute feeding; that the preparation of mixtures of cream and milk presents no difficulties and that even at an advanced price for suitable milk the necessary materials cost very little.

The complexity, and therefore the perplexities, of percentage modifications depend altogether on the use of a variety of creams and of milk of different analyses; if suitable milk is in use, or if the analysis of the milk to be employed is known, the mixtures usually required, at any rate, may be computed by the working equations with substantial accuracy and as readily as mixtures of drugs. If, therefore, modified milk is to be employed as a substitute food for the infant, under the immediate direction of the physician, as all artificial feeding should be, percentage modification furnishes a very simple and a very practicable method for its preparation and its use.

The real difficulty in the way of the scientific method, and of other methods as well, is the lack of suitable milk for the preparation of infant food; and until suitable milk is generally available, the milk-laboratory offers the best solution of the problem. Here and there "baby-milk" is furnished; and always, it is understood, the supply, at largely increased prices, is unequal to the demand that has been quickly created—among the laity; the family physician appears to be content to leave the matter of the milk supply to the average milkman, and the feeding of the infant to the enterprising and insistent manufacturers of patent foods; and the records of infant mortality, ill development, malnutrition and disease, the direct results of imperfect or improper food and feeding, continue to be written.

It is true that the great majority of bottle-fed babies live, and the greater number of them thrive, apparently, in spite of dietetic adversity. They live because they were born to live. Infant mortality is unnatural. And it is not less true that many of these fair, fat babies—all of them are fat—have less than the normal powers of resistance and recuperation; while the less vigorous, or the imperfectly developed, are subject to disorders and diseases which the well-fed infant escapes. The strong survive, for precisely the same reason that the Scotchman survives his diet of oatmeal. But in the case of the feeble infant, and of the dyspeptic infant in particular, health and growth and life, it may be, depend on its having the right food, which is suitable milk, suitably modified.

The production of suitable milk is perfectly practicable; and the effort, even the organized effort, of physicians may well be directed to this end. In view of the diminished and diminishing birth rate in American families, and of the growing indisposition and inability of the American mother to nurse the baby, the question of artificial feeding has become of vital importance to the community. There is no subject within the domain of medicine, not even the control of tuberculosis, that concerns common interests and the common welfare more intimately. Indeed, tuberculosis is in itself a disease of imperfect nutrition, and to provide for the nutrition of the infant may well be among effective measures for its prevention. It is not unreasonable to believe that the constitution of the individual may be affected in some manner, to some degree, by the character of the food during the period when, normally, the physical development is most rapid.

SIMPLICITY IN INFANT FEEDING.*

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The average physician is generally appalled by the mathematics which play so important a part in present-day papers on infant feeding. He either comes to look on infant feeding as in the highest degree a difficult problem, and babies' digestions habitually delicate, requiring complicated formulæ and frequent minute changes in percentages, or he discards all theories in disgust and leaves the feeding of the baby to the mother or nurse, or even resorts to the wares and printed directions of the advertising food manufacturers. Both of these extremes are undesirable.

While there is no doubt that a fairly accurate idea of percentages is of great value in infant feeding, and that the difficult cases can be managed best by keeping these well in view, yet it is perfectly possible for a physician to feed babies successfully without this expert knowledge and to give simple directions for the preparation of the food without the use of formula lists or patent foods.

NEED OF SIMPLE RULES.

It is evident that the simpler the rules and formulæ for making up the daily food of the baby, the less liability will there be for error on the part of the mother or nurse and the easier it will be for the physician to prescribe. It is also reasonable to suppose that the less the milk is manipulated in order to obtain the desired formula the more easily will it be digested by the infant.

The physician who looks on the baby's stomach as a test tube and on the food merely as so much per cent. of different ingredients is apt to disregard every factor but the percentages and to blame the baby and not the food if the former does not thrive. Theoretically the food is right and the baby at fault.

NEED OF STUDYING CASES INDIVIDUALLY.

Some infants thrive on mixtures made up of centrifugal cream and fat-free milk recombined so as to give the theoretical percentages required. But the fact that others do not, and yet will thrive on similar percentages made up of gravity cream, shows that there is something besides chemical percentages that must be considered—some vital characteristic as yet but little understood. In the same way the fact that while many infants thrive on Pasteurized or even sterilized mixtures, yet others grow pale, lose their appetite and develop scurvy, shows that certain characteristics of the milk destroyed or

* Read in the Section on Diseases of Children of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

altered by heat must be considered as well as its chemical composition.

Another fact is brought out by these observations, namely, that infants are not machines and that they can not all be treated alike. It is evident that we should avoid, if possible, what is harmful to some infants even if others are not disturbed thereby. Because an infant of a year appears to thrive and be in robust health on a diet which includes tea and cabbage, no argument should be adduced in favor of tea and cabbage.

NEED OF SPECIAL BREED OF COWS.

The basis of infant feeding is the milk of some animal, and for practical purposes we are limited to the cow. When one considers what great modification in external forms has been accomplished by artificial selection in the case of dogs and pigeons, for example, it is not, I hope, idle to expect that some day a race of cows will be developed by careful breeding and selection whose milk shall approximate very closely in chemical analysis the milk of woman. The difficulties in the way of artificial feeding would then be less, although the differences in the vital characteristics of the two milks can never, of course, be eliminated. At present we must take cows' milk as we find it and modify it to suit the infant's digestion.

NEED OF MILK INSPECTION.

When milk commissioners give their seal of approval the responsibility of the physician is much lightened. Certified milk means cleanliness in the cows, barns, utensils and milkers, freedom from disease in the cows and consequently a clean, safe milk. In the absence of a milk commission it is incumbent on the physician to look into these matters as closely as may be, visiting the dairies if possible. It is far better to use a raw, dirt-free and therefore germ-free milk than to take a dirty milk and detroy its vitality in endeavoring to cleanse it by centrifugal force or by Pasteurization. Both processes are undesirable. The latter process does not destroy the dangerous butyric acid and peptonizing bacteria, but it does affect the lactic acid group, which, when active, serve to check the more dangerous bacteria.

CENTRIFUGAL CREAM AND GRAVITY CREAM.

As the dilution of whole milk in order to diminish the percentage of albuminoids will cut down the fat too low, it is necessary to begin with a cream as the basis of our modifications. By the dilution of a 10 or 12 per cent. cream and the addition of sugar of milk we can make up a mixture fairly comparable to woman's milk. To obtain the cream several practical methods are open to us. Centrifugal cream can be obtained at dairies, but it is undesirable owing to the changes that have taken place in its physical or vital characteristics. This cream, as sold at most dairies, does not have even the merit of accuracy of percentage. Gravity cream may be obtained by siphonage. This is rather a complicated and delicate process and the siphon is a difficult instrument to clean. Dipping off the top milk with Chapin's dipper is a good method, but here also is an instrument to be kept clean. Pouring off the top milk is the simplest method and is perhaps looked down on by some on account of its very simplicity. There are no instruments to be kept clean. The results by this method are very uniform, as I have shown by numerous analyses.[1]

1. "Cream for the Home Modification of Milk," Boston Med. and Surg. Jour., vol. cxlviii, 1903, p. 414.

DILUTIONS.

The richness of the cream can easily be varied by pouring off more or less of the top milk. Although the exact amount of fat can not be told without analysis, the latter is rarely necessary, as a certain amount of experimentation is required for every infant. As a rough rule, one may remember that the upper eight ounces poured from a quart of milk after it has stood at least four hours contains about 10 per cent. of fat; the upper twelve ounces about 8 per cent., the upper sixteen ounces about 6 per cent. and the upper six ounces about 14 per cent.

The physician must be guided by symptoms and the appearance of the stools and regulate the amount of fat accordingly. It is easier and better, as there is less manipulation required, to dilute this top milk with water than to combine a rich cream, a lower or fat-free milk and water. This latter method involves an unnecessary splitting up and recombination of ingredients.

Instead of using water as a diluent or modifier, a cereal water—barley, oats, rice or wheat—can be used even in the youngest infants. There is no doubt that the cereal renders the milk more digestible by lessening the size of the clots, and also that a small amount of starch is digested even by the newly born. This return to an older method, used empirically for ages, has now a scientific foundation. Most babies do perfectly well with water as a diluent, but some have difficulty in digestion unless a cereal is used. After the age of six months all babies, with but few exceptions, are better with cereal modifications.

HOW TO FEED AN INFANT.

In beginning to feed an infant, whether it be a newborn or an older one that has suffered from improper feeding, the safest rule is to begin with a mixture weak in all its ingredients, and by slow degrees gradually increase the strength. The mistake is often made of beginning too strong and in making frequent and purposeless changes. Thus a new-born baby can be put on a mixture in which there are only three ounces of the upper eight ounces of top milk in twenty ounces, and the strength gradually increased by the addition every second day of half an ounce more top milk and the subtraction of half an ounce of water until eight ounces of top milk are given in a twenty-ounce mixture.

It is gratifying to find that many infants who have struggled unsuccessfully on much modified milk mixtures will often respond at once when these simple, but, it seems to me, all important principles are borne in mind.

NOTE.—In this article I have purposely avoided all reference to the calculation of percentages, knowing by experience what a paralyzing effect such reference has on most physicians' minds. For those who care to venture on this subject, which is not necessarily difficult, the following simple rule will be found easy of application:

Rule.—Each ounce of 10 per cent. cream in a 20-ounce mixture represents .50 per cent. of fat, .20 per cent. of albuminoids and .20 per cent. of sugar, and each even tablespoonful of sugar of milk added to this mixture raises the percentage of sugar 2.

In the example given above, in which the infant is started on 3 ounces of the upper 8-ounce top milk in a 20-ounce mixture, the formula would be written as follows:

Top milk	3 ounces
Water	16 ounces
Limewater	1 ounce
Sugar of milk	2½ even tablespoonfuls

Assuming that the top milk contained 10 per cent. of fat,

this would mean, approximately: Fat, 1.50; sugar, 5.60; albuminoids, .60.

The final formula of

Top milk	8 ounces
Water	11 ounces
Limewater	1 ounce
Sugar of milk	2½ level tablespoonfuls

would mean, approximately: Fat, 4.00; sugar, 6.60; albuminoids, 1.60.

The percentage of fat in the top milk can be gradually diminished by pouring off more of this top milk from day to day. In this way the strength of the albuminoids can be gradually increased in the mixture without increasing the fat beyond 4 per cent. When a cereal water is used in place of water, only one-half as much sugar of milk is necessary and no limewater is needed. The value of limewater in the water mixture is somewhat doubtful.

CERTIFIED MILK IN SMALL CITIES.*

C. W. M BROWN, M.D.
ELMIRA, N. Y.

Forty-nine states and territories have laws applying to the production and care of milk and its products, while a large number of municipalities have ordinances governing its quality, transit, care and sale. All these laws and ordinances, with possibly one exception, apply chiefly to the amount of butter-fat and total solids the milk must contain and not to the quantity of extraneous matters or to the bacterial count.

Interest in and knowledge of milk and foods is increasing both in the medical profession and among the laity, if the numerous articles of scientific and popular interest in the medical and lay journals can be adduced as evidence. But in spite of this interest and increase of knowledge, the fact remains that ordinary milk, while of almost universal use, is the most uncleanly article of food on our tables.

STERILIZATION AND PASTEURIZATION.

That the average milk is unclean and many times unfit for food, especially for infants, has long been known and has given rise to its heating or cooking in order to lessen its unfitness and lengthen its keeping quality. This process we call sterilization.

A few years later it was found that this process was fraught with danger and that practically a lower degree of heat and a shorter period of heating served as well. Pasteurization was then the vogue for a time. Now it is safe to estimate "that all forms of sterilization do impair, although possibly to a slight degree, the nutritive properties" of milk. That commercially Pasteurized milk is more unsafe and less to be trusted than ordinary milk is abundantly proven by the investigations of Pennington and McClintock, of Philadelphia. What is true in Philadelphia is probably true of Pasteurized milk sold in other cities.

We would naturally anticipate that hospitals would be furnished with good milk, yet Edsall found many of them in Philadelphia served with milk of "shocking quality," some of it containing millions of bacteria to the cubic centimeter.

I need not say that when it can be obtained the desideratum is fresh, clean milk, so fresh and clean that it can be safely used raw, either for the food of infants or sick adults. The best milk can now be procured chiefly in the large cities. The Walker-Gordon Laboratory Company, a commercial enterprise, supplies a high-grade milk to eleven of the largest cities in the United States and two in Canada.

MILK COMMISSIONS.

The first medical milk commission was that of Essex County, N. J., formed and pushed to success by Dr. Henry L. Coit, of Newark. It issued its first certificate in 1893, only thirteen years ago. Others which have started since are the Milk Commission of the Medical Society of the County of New York, the Milk Commission of the County of Kings, New York, the Milk Commission of the Philadelphia Pediatric Society, the Milk Commission of the Children's Hospital Society of Chicago, the Milk Commission of the Milwaukee Medical Society, the Milk Commission of the Rochester Academy of Medicine, the Milk Commission of Cleveland, Ohio, the Milk Commission of the Syracuse Academy of Medicine, Syracuse, N. Y., the Milk Commission of the Medical Society of the District of Columbia, the Milk Commission of the Medical Society of St. Louis, Mo., and the Milk Commission of the Elmira Academy of Medicine, Elmira, N. Y. One or two others have been started, but have been discontinued. All of these milk commissions are in cities of the first and second class except the last one, Elmira, which has a population of about 35,000.

THE ELMIRA MILK COMMISSION.

In the list of 136 cities in the United States having a population of 30,000 or over, Elmira stands one hundred and thirty-third. Because of the successful accomplishment of the work of our commission in a small city, an ex-president of this Section suggested that its story be told here, and that is why I presume to stand before you to-day that others among the smaller cities may be stimulated to begin to secure the production of clean milk.

Six years ago an eminent pediatrist of New York City said, in a clinical lecture, "that if five or six physicians in any town wanted clean milk it could be had." That was a suggestion. In due time a paper was read before the Elmira Academy of Medicine on "Clinical Milk: What It Is and What It Should Be." Much interest was aroused. Six men who were interested in the subject were selected and later were appointed the Milk Commission of the Elmira Academy of Medicine. Then the search for the farmer began. A circular letter was sent by the commission to about half of the ninety milk dealers of the city, those who either produced their own milk or were responsible, calling a joint meeting of the dealers and the commission. Not more than twenty responded. They listened curiously, respectfully, but that was all.

We next began to visit the better class of dealers at their farms, with negative results, until we found one who was already trying to do better than the average milk dealer as to cleanliness and good fat content. This one, a woman, had visited near one of the most famous milk farms in the country and had already a general knowledge of the benefit of clean milk and the requirements to produce it. After consideration she took up the work, built a new barn, had her herd tested for tuberculosis, the commission selected its experts and we issued our first certificate April 15, 1903. We established as our standard a 10,000 bacterial count. This has been exceeded but twice in three years. Butter-fat,

* Read in the Section on Diseases of Children of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

3.5 per cent. to 4.5 per cent., and other usual conditions were imposed. The milk is cooled and bottled within a few minutes after it is drawn, put in the crate, the top of which is filled with cracked ice, whence it is delivered to the consumers. Because of the nearness of the farm to the city, less than three miles, the night and morning milk is delivered, reaching the consumer not more than nineteen hours from the time the oldest of it was drawn the night before. This has not been accomplished with the aid of an agricultural college graduate, or even an up-to-date farmer, but simply by using the means at hand. Our farmer employed the same foreman she had before, guided, of course, by the commission and its experts.

In spite of the fact that our farmer will not allow the slightest bit of commercialism in its sale, not even the sending of the commission's certificate to physicians in the patronizing territory, the output is slowly but satisfactorily increasing and Quarry Farm milk has grown in favor with laymen as well as physicians. Besides supplying local consumers, it is shipped daily to Binghamton, N. Y., and New York City. It sells at 8 cents per quart, ordinary milk at 6 cents during the cold months and 5 cents during the warm months.

Another dealer, also a woman, sells a high-grade milk exclusively in bottles.

Besides the direct benefit to the immediate consumer, there has been a general improvement in the whole city milk supply. Our health officer is a member of the milk commission and through his influence the board of health has passed an excellent ordinance governing the sale of milk. The milk inspector of the local board of health has been made a state deputy health officer, thereby empowering him to enter on the premises of the producer. All the dealers will now, on request, supply milk bottled at the farm. In former days I have not infrequently seen them bottle the milk as they drove along the dusty streets.

A PRACTICAL CONCLUSION.

Elmira is not especially wealthy, nor are its inhabitants remarkably intelligent, nor are its physicians greatly more learned and skillful than those of other cities of similar size, yet here the time seemed ripe and the "five or six" were at hand when needed for the establishment and oversight of a successful certified milk plant. What we have done in Elmira I am sure can be done inside the next twelve months in a score of the other 124 cities of the United States containing 30,000 or more inhabitants which are now unsupplied with clean milk.

There are two great hindrances, it seems to me, to the rapid and successful progress of right infant feeding in cities. First, there is the difficulty in most of them in securing fresh, clean milk; partly for this reason we note the immense sale of artificial foods. Second, there is the widespread and lamentable lack of knowledge among physicians how properly to modify or adapt cow's milk to the infant. The responsibility for the first is on the physicians themselves in each town, for the second on the men who are teaching pediatrics in medical colleges and postgraduate schools. There may be some difficulty in finding the right man for producer. It may take considerable time and pains. It did in our case, but near each city is some farmer who is longing to do his work better than his neighbors and who is only waiting for you to show him the way. So Dr. Coit found Francisco and we found Mrs. Crane.

WHY PERCENTAGE FEEDING FAILS.

A PLEA FOR ITS MORE FREQUENT ADOPTION BY THE GENERAL PRACTITIONER.*

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PHILADELPHIA.

The subject of feeding infants under 1 year of age artificially has occupied some of the brightest and best minds of the profession. Among these authorities it has been clearly established that the best substitute for human milk is cow's milk so modified that it shall resemble the former in its essential chemical, physical and biologic characteristics and that these shall be adapted to the individual infant.

While it is true, and must be considered clinically, that the most accurate quantitative modification of bovine milk can not transform it into human milk, pediatrists are agreed that the best results are obtained by the so-called fractional or percentage method of feeding, however they may differ as to the best method of modification. Percentage feeding, not unlike most valuable medical facts, is a product of evolution and of many minds. It follows, therefore, that its history contains much that is indispensable and much that is useless. Many of the latest text-books have thus far failed to eliminate the latter from their pages. Many teachers fail to impress students with the essential facts with the result that they enter practice regarding infant feeding as a Chinese puzzle, unsolved and unsolvable.

Apparently contrary to its absolute scientific and practical worth, failures are numerous and this system of feeding is not only brought into disrepute, but is even ridiculed by many general practitioners of large experience. Recognizing the existence of these failures, a study of the causes that are operative in their production becomes essential to their prevention and to emphasize the simplicity of percentage feeding when once mastered and shorn of its mystery.

BEWILDERING MULTIPLICITY OF METHODS OF MODIFICATION PROPOSED.

The number of methods of modifying bovine milk is almost innumerable. One very recent text-book describes thirteen. The majority of others detail about six. Of these the major portion consists of rows on rows of figures which, even if valuable, can not be committed to memory, but must be consulted each time a formula is prescribed. These authorities err in presenting a method worked out instead of detailing its principles. If principles are taught and mastered, their application becomes a matter of ease. The multiplicity of methods proposed causes confusion and excites suspicion that none is accurate or reliable; that the whole subject is simply the algebraic product of some mathematical brain and of no practical worth. Herein lies the cause why so many practitioners refuse to consider the matter further and consign it to the consideration of the pediatrist alone. What is necessary is that the physician should select one method of modification and master it in all its details. He can thus become familiar with every phase of it and in a brief space of time it will dawn on him what a simple matter percentage feeding is after all. Of the many methods of home modification

* Read in the Section on Diseases of Children of the American Medical Association at the Fifty-seventh Annual Session, June, 1906.

proposed, Holt's top-milk method appears the most rational and the easiest of application. It takes nothing for granted and permits the physician to arrange almost any combination of proteid, sugar and fat. Next to this Bauer's method would probably stand.

METHODS ARE NOT INTELLIGENTLY APPLIED.

It matters not how well one may learn any single method of modifying milk, if he fails to apply it intelligently his efforts will be for naught. He must realize that he is dealing with an individual whose digestive apparatus is his own. Formulas are arranged to meet symptoms, and changes must be made as they become necessary. It must be clearly understood that our object is not to supply a percentage composition identical to the accepted analysis of human milk, but to adjust the quantities of proteid, fat and sugar to the infant's digestive powers. It must ever be remembered that we are feeding to human beings a fluid that Nature intended for calves. Consequently we must begin with weak mixtures and gradually increase the strength as the infant's digestive and assimilative powers are slowly unfolded. It is usually wise to start a newborn infant on 1 per cent. of fat and .33 per cent. of protein. These quantities are increased until at about 6 months the fat has reached 4 per cent. and the proteins 2 per cent. It is never safe to give more than 4 per cent. of fat at any age and a more conservative and wiser practice would never exceed 3.5 per cent. Young and sick infants tolerate comparatively high percentages of sugar, from 5 to 6 per cent. at birth. This is rapidly increased to 7 per cent. At 9 months it is diminished, and at 1 year the healthy infant is receiving 4 per cent. of sugar and a similar quantity of protein, or, in other words, undiluted cow's milk. Sick infants are to be fed formulas which are one-half or one-fourth the strength of those fed to well children of the same age. The same is true of the amounts and the interval of feeding. These must be carefully adjusted to the infant's stomach capacity and its appetite.

THE WRITTEN FORMULA NEED NOT REPRESENT THE ACTUAL PERCENTAGES.

While it is desirable that the finished milk mixture should correspond in strength to the percentages represented by the written formula, practically it is almost impossible to secure this by any method of modification. Nor is it essential to a successful result. Whether modified at home or in the laboratory, the first formula is an experiment. The actual quantities must approximate the desired percentages. It matters not whether the finished formula contains, e. g., 1.5 per cent. or 1.75 per cent. of fat or .5 per cent. or .6 per cent. of protein, the essential thing is whether or not the infant can digest it. Then, as the indications direct, the amount of any or all the ingredients may be changed. With this in mind the physician is at once less confused. Otherwise he loses sight of the individual in his zeal to secure absolutely accurate percentages. Finally realizing that he is striving after the impossible, he discards the whole matter as useless and impractical.

PHYSICIANS AND PARENTS EXPECT GAIN IN WEIGHT TOO SOON.

An infant, newborn or older, or an infant suffering from chronic gastrointestinal catarrh, placed on percentage feeding, will not commence to gain at once, but may even lose a few ounces. Especially if he has attempted percentage feeding as a last resort, this often causes the practitioner keen disappointment. A gain in weight should not be looked for too early. In fact, it is clearly erroneous to expect it. Attention should first be directed to the infant's stools, to its general well-being and to the disappearance of all untoward symptoms. If the stools lose their green character, if the number of curds and the quantity of mucus are gradually diminishing, if colic disappears, if fat is no longer present in the evacuations, if diarrhea or constipation is replaced by one or two golden-yellow, well-digested movements a day, if vomiting ceases and the infant sleeps the greater part of 24 hours, a gain in weight will be inaugurated and will be continuous, especially as the strength and quantity can be increased. Newborn and sick infants do not gain in the beginning because they are placed on formulas which are deficient in quantity and quality. The physician must, therefore, wait until he learns the infant's digestive powers or until digestive disturbances cease before he should expect a gain in weight.

PHYSICAL AND BIOLOGIC DIFFERENCES BETWEEN COW'S AND HUMAN MILK NOT SUFFICIENTLY RECOGNIZED.

While it is important to recognize that bovine and human milk differ quantitatively as to their protein and sugar content, it is more necessary, clinically, to consider their physical and biologic differences. It follows, therefore, unless these differences are overcome, our formula will fail in spite of the most accurate adjustment of percentages to the nutritional demands of the infant. In the presence of rennin and dilute hydrochloric acid the calcium casein of milk is changed to calcium paracasein. This is commonly called the curd. That of cow's milk is thick, dense and tough; that of human milk is soft, feathery and flocculent. It has been clearly demonstrated by the brilliant work of Chapin that the character of the calcium paracasein (curd) influences largely the subsequent development of the intestinal tube of the mammal for which it was intended. Therefore, human sucklings can not digest the curd of bovine milk with any degree of satisfaction. In fact, this physical difference between the curds of these two milks is the crux of the whole problem of infant feeding. Failure to recognize it is the cause of 90 per cent. of the failures of percentage feeding. It is the rock on which the majority of artificially reared infants are wrecked. The physician must, therefore, attempt to transform the physical characteristics of the cow's calcium paracasein into those of human calcium paracasein. This can be accomplished, to a certain extent, by the use of plain or dextrinized cereal gruels or waters, by decalcification with sodium citrate, as first described by E. A. Wright and recently emphasized by Poynton, of London. In special cases the curd may be entirely eliminated by the use of whey or it may be peptonized temporarily.

Bovine milk contains germs. Human milk is practically sterile. Insensibility to this well-known difference frequently results in disaster. The sources of germ contamination should be recognized. They are many and varied. Probably the most important source of initial contamination is the air of the stable. This fact has received recent and positive emphasis from the work of A. H. Stewart, of Philadelphia. The physician should have a thorough knowledge of the milk supply, the method of milking, the care of the cows, the cans, bottles and the stable, the handling of the milk on the farm, the shipping and the icing of the cans and the care of the milk

in the shops. The contamination with and the subsequent growth of micro-organisms should be prevented in every possible way. It has been well stated the time between the cow and the baby should be shortened. When the milk diluent is water the latter should be boiled. Cane sugar is preferable to milk sugar because it is cleaner. Bottles and nipples should be sterile. In cities home Pasteurization of milk is advisable. Clean milk is an essential absolutely necessary to successful infant feeding. The gastrointestinal disturbances, especially infantile dysentery, that are responsible for over half of the morbidity and mortality of infant life, have their orgin in infected milk. Therefore, while Pasteurization is recommended, it is more rational, and decidedly more safe, to prevent the initial contamination on the farm.

PHYSICIANS DO NOT DIAGNOSE THE VARIETY OF INDIGESTION.

A potent and frequent factor of failure is that physicians do not recognize which particular element of the food is at fault. Milk, in this connection, is erroneously regarded as a simple substance instead of a complex mixture of fat, sugar and protein, any one of which may be the cause of trouble. The symptoms of indigestion vary as the cause. A careful history as to vomiting and a thorough inspection of the stools will usually permit of a correct deduction. It is, therefore, necessary to designate "fat" indigestion, "protein" indigestion or "sugar" indigestion, as the case may be, in order that the amount of the offending ingredient may be changed or temporarily eliminated.

PHYSICIANS DO NOT THINK IN PERCENTAGES.

One common cause of failure is that the practitioner will not or can not learn to think in percentages. The indiscriminate mixing of so many ounces of milk, water, cream, lime water and sugar is irrational, unscientific and pernicious. If percentages are prescribed the ounces will take care of themselves when the former are applied to some simple method of modification. To be able to exhibit the proteins, fat and sugar of cow's milk in approximately definite percentages is not only a source of comfort and satisfaction, but is productive of the best results, especially when these may be varied at will according to the indications to be met.

MOTHERS AND NURSES ARE NOT EDUCATED IN PEDIATRIC HYGIENE.

Physicians fail to teach the mother or the untrained nurse the details of mixing the various ingredients of the milk formula, for the reason that they assume that their orders will not be carried out. That this assumption is correct, in most instances, can readily be proven by any one who has had much experience in feeding the infants of the poor. The physician need but lead in enthusiasm and the mother will be most eager to follow. Personally I have attained some of my best results in the homes of the poor with large families and with dispensary patients. Let a mother but understand that you are interested in the welfare of her infant, both present and future, and no sacrifice will be too great. It is the physician's duty, nay, his privilege, to go into the kitchen to demonstrate to the mother how to secure top-milk, what is meant by ounces, how to make cereal waters, how to prepare whey, how to peptonize, how to make lime water, how to mix the food, how to divide it up into bottles, how to Pasteurize, how to ice the milk and how to take care of the bottles and the nipples. The mother can be taught these hygienic details at the expense of very little time. They soon become a habit and the success of the modified formula is assured.

LACK OF PROFESSIONAL SUPERVISION.

Feeding cases should be carefully watched. During the first month, at least, they should be seen once a week. When expense is no desideratum this weekly inspection should be continued longer. When it does exist nothing will be lost by making the visit gratis. One is well repaid by the satisfaction of seeing the infant grow fat. This inspection should not be confined to the infant but should extend to its food and the hygiene of the entire nursery. Only in this way can the physician keep in touch with his charge, detect and correct errors, educate the most ignorant mother, little by little, and himself learn more about infants and infant feeding than by months of reading. Weekly weighings should be made and recorded on a weight chart if possible. By this means the physician is furnished with an index as to the nutritional qualities of the food and also as to whether the strength and quantity are to be increased.

The food should be exhibited in definite amounts at designated hours. Neglect in this respect may be disastrous. It is better to underfeed than to overfeed. Most examples of starvation are examples of overfeeding. The quantity of a feeding can represent the infant's age in months. After six months this progression is somewhat slower, a child of one year receiving about 10 ounces. This applies only to healthy infants. In increasing the amount, the increment should not exceed one-half an ounce at a feeding. In many cases it is unwise to exceed a quarter of an ounce.

Professional supervision includes an inquiry as to the character and frequency of the stools, as to vomiting and the time of its occurrence, the number of hours the infant sleeps, its manner while awake and as to the color of its urine. Failure to attend to these details may invite failure of the formula notwithstanding its accurate composition.

PHYSICIANS AND PARENTS DELUDED BY PATENT FOODS.

The ease with which proprietary foods are prepared is one reason why physicians and parents are so eager to feed them to the infant. Their large sugar content often causes the infant to fatten rapidly. Their preparation is made more easy by the directions plainly printed on the label. They require little thought from the mother and less from the physician. The latter at once feels relieved of all responsibility. What a delusion! How many babies are made chronic dyspeptics and suffer from chronic skin eruptions? How many fat anemic infants have rickets, scurvy, club-feet, bow-leg, knock-knee, spinal scoliosis and a resistance so weakened that they can not withstand the acute infections? Their number can alone be appreciated by the pediatrist who receives them after they have passed the gamut of patent foods and through the hands of many physicians. As a makeshift, as a temporary food while on a journey or when cow's milk can not be obtained, these foods are of service. As a permanent infant food they are a delusion and a snare.

[FOR THE DISCUSSION ON THIS SYMPOSIUM ON MILK FEEDING SEE PAGE 641.]

Fever in Tuberculosis.—L. Sexton, New Orleans, states that fever in tuberculosis produced by exercise or exertion does not occur immediately, but follows in about five or six hours, the same as from a tuberculin reaction.

THE ALCOHOL QUESTION IN THE NAVY.

WITH SUGGESTIONS AS TO ITS RESTRICTION.*

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The remarks I shall make to you will be mainly confined to the problem as it affects the personnel of the Navy. After a service of over thirty years in all parts of the world, under the varying conditions of peace and war, I am convinced that the use of spirituous drinks should be discouraged and limited as far as possible, and yet I recognize that laws to prohibit their sale *in toto* can not be enforced and, as a rule, have proved of doubtful value. During my naval service the necessity for temperance has increased very greatly. As the huge floating machines of war have grown in force, they require more intelligent and skillful handling to keep them effective. There is no place on a man-of-war for one whose brains are dulled and whose hands are tremulous from drinking. Even those filling very subordinate positions may readily hazard the safety of the ship and the lives of the crew by thoughtlessly leaving a valve open or an uncovered light near explosives.

It is difficult to ascertain the amount of intemperance in the navy, but I have thought that the admissions to the sick list for "alcoholism" would be as correct an index as is available. In the United States Navy in the last three years there were 753 cases of alcoholism or 251 a year for an average force of 36,347 men, and during this period there have been 13 deaths from this cause. The admissions have been nearly 7 for 1,000 men (6.9).

I have taken for comparison the English and the German navies, as their reports are fuller and the personnel is essentially of the same race as our Navy.

In the German Navy, with an average force of 31,000 men, there were in 3½ years sixteen cases of alcoholism admitted to the sick list, less than 5 a year.

In the English Navy in the last three years there were 251 admissions for alcoholism, an average of 84 a year, and the average strength of the navy was 104,000 men.

The ratio of admissions in the three navies is:

United States Navy	6.95 per 1,000 men.
English Navy	.77 per 1,000 men.
German Navy	.14 per 1,000 men.

There are nearly ten times as many admissions for alcoholism in the United States Navy as in the English Navy, and nearly 50 times as many as in the German Navy. Our Navy makes a very poor showing in comparison with those of England and Germany. But the admissions for alcoholism indicate only partially the amount of sickness due to drinking, and very imperfectly the amount of drinking. Only those cases appear in the medical reports which require treatment for several days. This is shown by the fact that the 260 cases treated in 1904 account for 1,345 sick days, or, in other words, the average patient was ill for a little over five days. The majority of the cases of drunkenness do not appear on the medical reports and are not seen by the medical officers. Intoxication in the sailor is looked on as a pardonable offense, and if he is quiet and orderly he is allowed to go forward and sleep off the effects of his carouse. If noisy and troublesome, he is placed under charge of a sentry and when he is again sober he is released and returns to duty. It is only in the exceptional cases when after the lapse of 12 or 24 hours he remains unfit for duty that the medical officer sees him. Injuries received while drunk and diseases contracted from carelessness while intoxicated appear under their appropriate headings and not under alcoholism.

We see that from the medical records alone we can form but an imperfect estimate of the amount of intemperance in the Navy. It is very difficult to estimate even approximately the number of men who return from liberty unfit for duty from drinking, and on asking an old medical officer what his opinion was he placed his estimate at about 2 per cent. of those going on leave. This, I believe, is very conservative and well inside of the actual number.

Beside the phases of the alcohol question which I have spoken of, there is another which is of the greatest importance for the health of the sailor and the efficiency of the Navy. This is the very close connection between alcohol and venereal disease. It is difficult for a person living on land to realize the very great importance of venereal diseases in the Navy—where over 25 per cent. of the whole time lost through sickness and injury is due to venereal affections. Very many of these diseases are contracted when the sailor is heated by alcohol and commits excesses he would not if sober. Again, it is well recognized that the drinking man is more liable to contract other diseases than the temperate man; this is particularly true of the various tropical diseases to which the sailor is more exposed than other men and probably true, also, of pneumonia and tuberculosis. We can not fail to realize the very great importance of the drinking habit and how through injuring a man both mentally and physically it renders him a less valuable servant to the government. Before we consider the means for restraining this habit and diminishing the evils resulting from it, I think we should try to ascertain why drinking is so general in our Navy and why it is apparently so much more prevalent among our sailors than it is among the men in the English and German navies. I believe that the American people are quite as temperate as the English and German, but the same is not true of our sailors. There are several reasons why the sailor is more liable to indulge in the use of stimulants than his fellow who lives on land.

A young man—for the large majority of sailors are young men—when he goes on board a man-of-war, finds that, while he is subjected to many new restrictions, he is, also, freed from many of the restraints which surrounded him on land. He finds himself in an atmosphere where drinking is popular and where occasional drunkenness is regarded with indulgence. He sees that the majority of his associates drink, and that most of the officers take their daily beer if nothing stronger. He may hear the chaplain and a few others advocate total abstinence, but the practice of the majority weighs down the precept of the few. He sees, too, that the ordinary lapses from temperance are not severely punished and that the temperate man is not rewarded or preferred. When he goes ashore in a foreign port, and also in many of our own, what are the places which welcome him? In many places the only houses where he is received hospitably and where he is treated as the equal of any man is the saloon. And the saloon is only too common. Visit any of our navy yards and see what are the buildings which cluster around the entrance or line the opposite side of the street. Again, visit one of our largest seaports and go along the water front, the famous Barbary coast, and what are the shops that outnumber all the others? The saloons, some fairly respectable but too

* Read in the Section on Hygiene and Sanitary Science at the Fifty-seventh Annual Session of the American Medical Association, Boston, 1906.

often low dives, in which whoever enters after nightfall truly leaves hope behind.

The water fronts of most ports are much the same whether in Asia or America, lined with saloons which live off the sailor, where the rapacious man and lowest harlots join efforts to allure and fleece the man perhaps now ashore for the first time in months. In these places he is fortunate if he loses only his money and does not carry back to his ship disease which may last him for years.

But the leading motives which lead the young sailor to drink are those of good fellowship and the example of the older men. When after a stay on board of a ship lasting very likely several weeks he steps ashore with a party of his shipmates in Manila, Nagasaki, or any other foreign port, there is always some one who will propose a drink and perhaps take the party to an old acquaintance who receives the boys only too cordially, and round after round of drinks follow in quick succession. The young man can not be much blamed for staying with his mates, for if he left them he would be looked on as churlish and very probably become the object of their witticisms. Then, too, a person landing for the first time in a strange place does not know where to go. If he falls into the hands of a resident touter who is only too ready to make friends with him and show him the town, he will probably fare worse than if he had stayed with his mates who would look out for him and, at all events, see that he got safely back to his ship.

From all these motives the young sailor only too soon acquires a taste for drink, and he is fortunate if he does not become addicted to whisky and other spirits. The worst fate which can befall him is to fall a victim to the cheap native spirits such as the vino of the Philippines, whose use is more dangerous than opium.

There remains for our inquiry the question why alcoholism, and presumably the drink habit, is so much more frequent in the United States Navy than it is in the British or the German. As I mentioned a short while ago, there are nearly ten times as many admissions per 1,000 men for alcoholism in our service as in the English Navy and nearly fifty times as many as in the German Navy. The United States Navy, too, is the only one of the three navies where there is a total prohibition of all alcoholic beverages. In the English Navy a ration of rum is issued every day, and in the German Navy, while there is no regular issue of spirits, the sailors are allowed to buy beer from the canteen.

During the Civil War the grog ration was abolished by act of Congress and there has been none issued for over 40 years. During the ten years between 1890 and 1899 the sailor was, on some ships, allowed to buy beer from the bumboat, but this privilege was abolished and for six or seven years the sailor has not been allowed to have any stimulants. We may say that for the greater part of forty years the United States Navy has lived under laws of total prohibition which are better enforced than such laws generally are, for there are no convenient drug stores where bitters containing a large percentage of alcohol can be bought, nor fruit stands where soft drinks are sold which can hardly be distinguished from lager, and where there is cider which has been fortified to preserve it.

It seems strange that the only one of the three navies where prohibitory laws have been in force for over a generation is the very one where alcoholism is most common, but I believe that prohibition, instead of favoring the cause of temperance, injures it. Not on board ship alone, but on land also, prohibitory laws are often poor agents in securing temperance. I never could see that sailors were more temperate in the ports of Maine than in New York, and quite as many returned from liberty who had evidently been indulging in stimulants. The majority of young men who go to sea drink more or less, and I think that the number of total abstainers is very small. It is difficult to ascertain the figures accurately, but I remember several occasions, as Christmas and Fourth of July, when the men were allowed to have beer with their dinner, and there were very few who refused it. The majority of the men who drink prefer beer, a much smaller number drink whisky and a small percentage drink to excess. And in coming to a consideration of the means by which we can limit the evils of drinking I wish to emphasize that we are considering the problem as it affects men who very generally drink, mostly in moderation.

In studying the means we can employ to diminish the evils resulting from alcohol I would place much reliance on the education of the sailor. He should be shown that the use of alcohol is injurious both mentally and physically, and that even a small amount of spirit, when taken regularly, will eventually injure his health, render him more liable to disease, and almost certainly shorten his days, and this, too, when the quantity taken is too small to cause intoxication. The steady drinker who takes a few drinks of spirit every day is more certain to suffer from it in the long run than the man who gets intoxicated once in two or three months, as the old-time sailors did. I believe he should be taught the great difference in the effects caused by spirits produced through distillation and those from the light wines and malt liquors where the alcohol is produced by natural processes of fermentation. In wine-growing countries there is little drunkenness and few of the diseased conditions so often caused by spirit drinking. The Italians are a striking example of a hard working people who habitually drink wine and rarely become intoxicated. In California, where I have lived for several years, they are very industrious and successful and they all drink claret freely.

I believe that we should labor earnestly in the navy to elevate the prevailing opinion on the question of temperance. This feeling is much feebler than it should be. We all admit that temperance is desirable, but we do not reward it practically. We look with altogether too much leniency on overindulgence in stimulants. Provided a drinking man is quiet and does not commit any overt act, his weakness is overlooked or he is so lightly punished that he feels he has been guilty of a very pardonable offense.

When any one on a ship is unfit for duty, if only for a few hours, from the effects of drink, he should at once be made to feel that he is a man who can not be trusted, and that the man who is always fit for duty will be preferred over him. It should be clearly understood that the rewards are for the temperate alone, and that he who lapses even rarely, must be contented with a subordinate position. This is only justice for the temperate man and for the government, too, for in a responsible position no amount of brilliancy can palliate or counterbalance a possible unfitness for duty when caused by alcohol.

Beside promotion and consequent increase in pay there should be other privileges, as more frequent and extended leave, given to the man who is always ready for duty and has proved himself worthy of trust. When this is once clearly understood in the Navy I believe that there will

be a powerful incentive to temperance, that public sentiment will be strongly influenced for the better, and it is really on this sentiment that we must rely more than on any other one agent. If we can make it the fashion in the Navy to be temperate, whether this comes from moral conviction or from self-interest, we shall have gained much of the battle.

As another means of lessening the evils of spirit drinking and encouraging true temperance in the Navy, I think we should consider the advisability of allowing, under proper restrictions and supervision, the sale of malt liquors and light wines at the canteens on board ship and at navy yards. The subordinate officers on a ship, the warrant officers, machinists, gunners, electricians, and others, are men of intelligence and education. Under the direction of the commissioned officers they are entrusted with the performance of the most important duties on the ship. They are intelligent, self-respecting men, who behave themselves as well as, if not better, than the average citizen on land, and they are not allowed to have any light wine and beer. I believe that these men who have shown themselves fit for the most important positions on the ship, might be safely allowed a glass of beer or claret.

Life on a modern man-of-war is arduous and trying and there are scarcely any means of diversion. I have been on ships where even card-playing was forbidden. It is absolutely necessary for a man living under these conditions to have recreation and amusement when off duty. When he goes ashore at a navy yard there is no place where he can pass an hour or two pleasantly and innocently. As soon as he passes through the gates he sees only too many places inviting him to enter. These places, with few exceptions, are poor saloons frequented by the lowest of both sexes who gain their livelihood by corrupting the sailor. The quality of the stimulants sold is very poor and often drugged. To reach another part of the town he has to run the gauntlet of many such places. I have known of men going on liberty who have never got a hundred yards away from the gate and who have returned without a cent. There is now on our men-of-war a store or canteen where some articles commonly used by sailors can be bought. Paper, soap, and in some cases candy and delicacies in the way of food are sold at a small advance above wholesale prices. This store resembles somewhat the canteen at army posts, but the stock is more limited and should be much increased. In foreign navies, particularly the English and German, the canteens offer a large variety of articles of food, and in the German navy malt liquors are freely sold.

I think that the store on our naval vessels should be conducted on as liberal rules, and I believe that articles of food, soft drinks and malt liquors should be kept for sale. Beer should be sold under suitable regulations as to hours of sale and the quantity that each person can buy. A glass of beer at dinner and supper and at night when the day's work is over could be allowed with advantage. The firemen, electricians and others coming off an arduous watch might be allowed the same privilege. I remember that on the cruise of the Oregon around from San Francisco, Captain Clark every day at his own expense furnished the firemen coming off the afternoon watch with a drink of spirits. It encouraged the men, did good, and I was very glad that I could recommend it as a beneficial measure. On long voyages, which now rarely occur, the lack of space might not permit much beer to be carried, but in port, where supplies can be obtained daily, there would be no trouble on this score. In every navy yard there should be a club-house where men could go for an hour or two, play billiards, cards, or other games, and have their beer and tobacco. The profits of the club, which can not be large, for everything should be sold at a small advance above cost, can well be devoted to pay for music and other entertainments. Clubs have become a necessity for those who live on land and are certainly equally desirable for those living on a ship, where the average man has scarcely room to sit down and write a letter or play a game of checkers, and where he has to be in bed at nine.

In foreign navies at all their naval stations at home and abroad such club-houses are generally found and serve a very useful purpose.

I was convinced of the need of such a club-house during a recent tour of duty at Cavite. There are always several ships in port and sailors varying in number from six or eight hundred to two or three thousand. When men come ashore on leave there were but two respectable places open to them, the post exchange of the marine corps and the Young Men's Christian Association, both excellent institutions, but limited in capacity and, of course, furnishing only soft drinks. There were saloons in abundance so located that the sailor could hardly pass them by without being tempted to enter, and when a man was ashore for a few hours there was really no other place for him to go. If Cavite had been an English or German naval station, instead of an American, there would have been a canteen where a man could have got his glass of beer at about one-half the price charged in the saloons, and under much better surroundings.

I believe that the evils from drinking can be materially lessened by improving the character of the public places where liquor is sold. I know that it is the belief of many of our people that a place where liquor is sold is necessarily bad and should be abolished. I can not agree with this belief and I think the beer gardens and similar resorts which every year are becoming more common in our larger towns are a benefit to a very large class. For the dwellers in the narrow quarters of a crowded tenement house or flat it is a great boon to have a cool, brightly lighted garden or hall with music where a family can pass the evening at no greater cost than the price of a few glasses of beer. These resorts have been introduced by our fellow-countrymen of German origin. In their native country these gardens are universal and I think no one can regard the Germans as an intemperate people or one whose manhood and intelligence has been sapped by the use of liquor.

While these resorts have their evil side, it is small in comparison with that inseparably connected with the low groggery which is so common in our larger towns. The larger the saloon the better conducted it will be. The owner will have too much at stake to permit disorderly conduct, and will not allow it to become the resort of thieves and pimps. He can, also, supply a better quality of drink and food and can offer such attractions as music which the smaller place can not afford. I believe that the number of drinking places should be very much reduced and that the character of those left would naturally be much higher.

All that I have said about the benefit of a well-managed resort for the town dweller applies with still greater force in the case of the sailor. There is no tenement house where the occupants are so crowded as in a battleship, and none where is so little light and air. It is absolutely necessary for the mental and physical health of the sailor that he have an opportunity for recreation

which he can not get on a ship and which are not supplied to him by the existing sailors' homes, excellent as they are.

In conclusion I would say that in our Navy, after a trial of prohibition for over forty years, we still have a personnel which very generally uses stimulants. In spite of the persistent efforts of sincere workers the number of total abstainers is comparatively small, the general sentiment in favor of temperance is very lukewarm, and the feeling toward intemperance is indulgent. And judging from the medical reports alcoholism is much more prevalent in our Navy where prohibtion is the law than it is in foreign services where the milder stimulants are permitted.

THE ARMY CANTEEN AS A MEANS OF REDUCING INTEMPERANCE.*

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Nearly everything which has been published on the subject of the army canteen has been written by strong opponents or advocates. The inevitable consequence of such partisan discussion is that people who have little knowledge of the matter and less interest in it have not had access to any judicial summing up of the good and evil, so that their judgment has been biased by the tenor of the particular literature which has fallen into their hands. What is far worse, the subject has become a political one, so that it is now practically impossible to discuss it without being suspected of partisanship, bias or worse.

Having been an advocate of the canteen for twenty years, I, therefore, must necessarily condemn my own paper in advance, for I can not ignore my long experience, and must remain a partisan. I can nevertheless bespeak a respectful hearing from opponents by stating that there is a common ground on which we all can stand —and that is the one undoubted fact that the beer feature of the canteen is an evil thing. No army officer desires to be a beer seller, and yet he must be if he managed the old canteen. It is doubly repugnant to all of us to see the government engaged in this traffic.

In addition to this, we all know that drunkenness is an evil which has affected mankind for many ages, and its harm, though yearly diminishing, is yet so stupendous that every sensible person wishes it entirely eliminated. Army officers are human, after all, possessed of the ordinary attributes of human beings, and are as vitally interested in the elimination of drunkenness as every other class of good citizens. A few opponents of the canteen have very unwisely accused army officers of desiring to increase drunkenness—an inhuman charge which is difficult to explain. On this common ground we stand unfortunately, back to back, looking in different directions. If we could only induce ourselves to turn around and look at the scene on which the other side had riveted its eyes perhaps we might come to a fair agreement. Every shield has two sides, as the fabled knights found to their sorrow.

In the first place, there is one popular misconception which stands greatly in the way of mutual understanding, and that is the prevalent idea that a soldier is necessarily an immoderate drinker—a being different from the usual run of humanity and requiring extraordinary restraints and safeguards. This idea is an inheritance from the time when every man, in or out of the Army, drank to excess—a time when even the clergy considered it improper for a gentleman to go to bed sober. The civilian population has been so engrossed with the remarkable change in its own drinking habits that it has failed to note that the Army, being yearly recruited from civilians, has undergone the same change. It is no doubt true that a large proportion of civilian young men still drink alcoholic beverages, yet the proportion of abstainers is gradually increasing decade to decade as the result of the necessities of civilization. There are now many kinds of labor which can not be performed except by abstainers with clear heads never befuddled with liquor. By the ordinary laws of natural selection the drinkers are being weeded out, and in time the race must be very largely temperate or perhaps abstainers. Otherwise our complex civilization could not continue. Lives are in jeopardy many times every day, and should an engineer, pilot or motorman be drunk or even slightly influenced by liquor, we might be destroyed. Consequently populations are becoming more sober every generation. One has only to read the accounts of the drinking of past ages and even of a century ago to be convinced of the remarkable advance we have made. I have scant sympathy for those "muck-rakers" who see only the remaining drunkenness and can not realize the present rapid evolution toward universal temperance, with its marked number of abstainers.

Now these laws are operative in the Army too. Perhaps as large a number of soldiers drink alcoholic liquors moderately as among the same class in civil life, though I sometimes doubt even that. The number of abstainers is surely as high, and the number who never do get drunk is very gratifying. Soldiers are normal average men in perfect health, few being neurotics, and there is then no nervous basis for drunkenness. It can safely be asserted that inebriety is a result of some peculiar condition of the nervous system. It is a symptom of a disease and not a mere habit. It shows itself before 30 years of age and generally before 20. Drunkards always present other evidences of nervous defects or even disease. It stands to reason, then, that there should be less tendency in the Army that out of it—and that is a fact. I defy any one present to show me a mixed body of 1,000 laboring men and mechanics in any part of this country who show less drunkenness than in 1,000 soldiers of our Army. All statements to the effect that soldiers are more drunken than civilians are products of an uninformed imagination.

In the next place soldiering is quickly joining the ranks of those professions which demand sobriety. There are a host of reasons why the Japanese defeated the Russians. Among them is one which has not escaped serious attention from the civilized world—and that one is the drunkenness of the Russian and the sobriety of the Jap. For a long time now we have adopted the plan of getting rid of the young soldier who shows a tendency toward excessive drinking. He generally eliminates himself, to be sure, by court-martial, for offences growing out of drinking, but the officers now show a gratifying desire to eliminate the drunkard whether he commits himself in other ways or not. As a pure matter of selection, then, the Army is more sober than the civilian population from which it is drawn. It is high time that we resent the accusations so recklessly made by those who do not know the facts. They forget that one

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drunken soldier in uniform creates more comment than ten civilians guzzling in a near-by saloon, and it is very human to believe that every one in uniform acts the same. As for the officers, it has long been the will of the people that an officer found drunk on duty shall be dismissed as too dangerous to be trusted with great responsibility. But we have gone a step further, for we have recognized that an officer is really on duty at all times, in that he is liable to be called on in an emergency at any hour of the day or night. It would be dreadful if any of a defending party in a fort were drunk at the critical time. Consequently, officers who occasionally get drunk are not as fit for the services as the abstainers. The heavy drinkers may occasionally be men of tremendous ability, and, no matter how much we may have depended on them fifty years ago, we are learning that in the long run sobriety counts.

Finally, we are finding that many years of drinking bring on the inevitable dementia in which the victim acts like a mere automaton who can not be depended on, because his brain cells have atrophied. The policy now growing up is the fruit of a very bitter experience with these degenerates. They ruin discipline, destroy regiments and create anarchy when the strongest government is needed. Their moral sense has been destroyed, of course, so that they are unable to see the gravity of the misconduct of others. Grave crimes are not only excused, but honorable effort to improve matters are bitterly resented to the point of preferring false charges, denying facts and abusing their authority. Such regiments have a low moral tone which sometimes sticks to them for many years, causes the best men to avoid service with it, and leads its officers to do things which show they have been morally injured. Drunkards thus set a low standard, so that it can be accepted as a fact that in regiments long under the command of inebriates the decent element is suppressed and the very worst cluster around the drunken colonel. The better people of the surrounding civil community withdraw from intercourse, and the young officer, fresh from home, finds himself thrust into a lower social layer to his own injury. In addition, the example of the authorities over him not only teaches him deplorable habits, but gives him the impression that dishonorable and degrading conduct is expected of an officer and gentleman. Young officers trained in such an environment can not avoid some injury, and a few of them become too dangerous to be trusted with future responsibilities requiring a high standard of morality and honor.

As a matter of public necessity and military efficiency, then, the drunkards must be eliminated. They are dead wood, often retained because of past services of inestimable value to the nation, but, as a rule, they are quietly shelved as in civil life, on account of their lost moral sense. The nation is waking up to the fact that when it employs men to do brain work they must possess the brains to work with, and that when the brain atrophies the officer is demented. In one case of this kind I have seen the medical officer's diagnosis impudently denied by some ignorant laymen who wished the dement to be retained in service for their own selfish ends, but the general policy is to rid the Army of all the victims of alcohol and also eject the men who think that drunkards are desirable in command of Army posts.

These are the facts which show that the best officers are vitally interested in the reduction or total elimination of alcoholism. It is strange that any one in his senses should accuse them of the inhuman desire to increase drunkenness, and yet men, otherwise possessed of sense, do make the assertion. We will later discuss the great problem as to whether moderate drinking is harmless. Doctors, scientists, clergymen and laymen are all divided in opinion and each side has much data on which to base a good conclusion. We must first give attention to a topic on which all agree, and that is the one great fact that drunkenness must be eliminated from civilization in the quickest and easiest way.

In the solution of this great problem there is an unhappy division of opinion as to the means to be employed, and it is much to be feared that the views now held can not be reconciled. The workers for temperance divide naturally into two great classes—the idealists, who wish to accomplish the reform at once and who will not compromise with vice, and the practical reformers, who think that the desired end can be obtained by slow degrees only and that we must be content with small gains each generation in the manner which Nature devises in all her great works. Both sets of temperance workers are necessary, the one fixes an ideal toward which the others must direct their energies. The practical men point out the respective steps leading to the ideal. Each school is necessary to the other. The unaided idealists always fail, for their measures are impractical, and the others fail unless they have behind them the firm public opinion aroused by the idealists. Temperance workers outside of the Army are mostly interested in the ideal and have no concern with the practical affairs of police duties. Those in the Army have a sacred trust confided to them by the people—the welfare of the soldier individually and collectively. Whether we like it or not, we are forced by our daily work to join the ranks of those who are trying to minimize that which can not be eliminated for many generations. We would like to put an end to drunkenness among soldiers at once, but we can not; we have hit on a plan of diminishing it, and our opinions at least deserve a hearing. It is not a theory, but a very real condition which confronts us in the Army, and a sad one at that. Men are not perfect and never will be. The ideal in armies can never be obtained, but we must strive after it. I am wholly convinced that the Army owes all its advance to the crusade of the great temperance idealists, but it would have accomplished nothing without practical measures, so let us not stand back to back, but hand in hand and look at the following facts and work together:

Immediately outside of Army posts are collections of small houses and shanties used as saloons and worse. The proprietors lure young soldiers into these dens and exert all their arts to sell whisky. It is a money-making business, no matter what damage is done. It was such a blot on our civilization that many years ago steps were taken to provide means of weaning the soldiers from their tempters. It is found as a matter of experience that reading and amusement rooms do not attract them. At one post I have in mind there is the finest kind of a gymnasium and yet scarcely 5 per cent. of the soldiers enter it voluntarily. They all dislike reading as much as laborers everywhere. They do like to sit at a table with a little beer and growl over their hardships. I do not know what man would do if he did not have opportunities to complain now and then of his hard luck.

In view of the difference of opinion as to the harmfulness of this matter our opponents should be generous enough to concede the point, but I will meet them more than half way and say that it is harmful to place beer where young men can get it easily. What we contend is

this, the canteen system drove out a far greater evil—the low dives around Army posts. It made a remarkable reduction in drunkenness after 1890, when the system became established, as shown in the table of admissions to sick report for alcoholism. The statistics are backed up by reports from every source, certifying to the great reduction of cases of alcoholism admitted to sick report.[1] Add to this the consequent reduction of the number of courts-martial, of cases of venereal disease and the general increase of morality, we have proved conclusively that the beer feature of the canteen was an instrument for the reduction of drunkenness.

Now, what is the objection which overwhelmed this practical temperance reform and caused us to revert to the old conditions? Under the persuasion of the W. C. T. U., Congress was induced to forbid the sale of beer and wine in the canteen, the old rum shops sprang up like mushrooms, drunkenness immediately increased and there is no way we can combat the present evil. It is useless to supply reading rooms to men who won't read —we have tried it. We have tried amusement rooms and gymnasia, too. The saloon is an attraction we can not overcome.

The chief objection was, of course, the ethical one, that beer should not be sold on government reservations, but is that a sufficient reason for increasing the drunkenness outside the gate?

Principles are all right to live up to, but must be modified as soon as we find that they do evil. In no way we look at the matter is it justifiable to continue the old objection—laudable though it may seem to a superficial view.

The beer feature of the canteen might be described as fighting the devil with fire—a good doctrine, by the way, in the minds of many, if not most, devout Christians. Nevertheless, it can be denied that it is fighting with fire, for, though we acknowledge that it was a minor evil replacing a greater one, there are many honest men who do not see evil in it at all except as below mentioned.

When the canteens were in full blast we were frequently regaled in the daily press, with accounts of debauchery. It should not be necessary to deny this. After pay-day, it is a pretty noisy place, but young men are not happy unless they are making a noise. Occasionally a man will take too much—a matter which we try to prevent. It would be wrong to conceal this fact, for this is an honest effort to present the evil as well as the good.

Now let us ask ourselves, if there is any danger in the small amounts of beer and wine usually consumed by the average man. Literature is crowded with descriptions of experiments in which large quantities of alcohol are used. The evidence, of course, is all on one side. Yet there is astonishingly little as to the effects of minute quantities and opinions as before stated are at wide variance. There is, indeed, a growing mass of evidence, that all carbohydrates are first oxidized into alcohol before any cell—animal or vegetable—can utilize them as foods for energy. That is, the main energy food of the living world is alcohol manufactured by the enzymes produced by the cells themselves. The long discussion as to whether or not alcohol is a food is settled, though it will not be acknowleged as settled for another fifty years. Of course, we must allow nature to produce alcohol in our bodies in her own way. So we stand on very firm ground in the opinion that the alcohol introduced into the stomach is an unnatural way of taking it into the cells, and can safely be omitted. That is far different from saying that it is a harmful way in moderation. Indeed, the use of a small amount may actually relieve the tissues of the work of preparing it and may tend to survival. This is the manner in which we became dependent on starch in the place of cellulose. Likewise we once used raw starch, but the weaklings who used cooked starch had the advantage and survived in greater numbers, so that we are dependent on it now. Likewise we are undergoing a still further evolution. Starches are manufactured into sugar in our bodies, so that if we eat a little sugar we save the organism that much trouble. There is a natural selection of types able to do this, and the natural result is that mankind is already partly dependent on sugar manufactured outside our bodies. Human evolution is going on all the time—it is not ended, as a few men assert. A tremendous selection is now going on in many directions. It is quite possible that future man may be dependent on both sugar and alcohol in moderation. This, too, is far from saying that we are dependent on them now or ever will need large amounts to the total exclusion of cooked starch.

The use of beer in the canteen can not then be attacked on the scientific plea that it is harmful or useless. We must attack it on ethical grounds. It is acknowledged that it is bad ethics to allow a young person to use alcohol. At present we must keep it from them until full maturity if we can. Young soldiers are the very ones we would like to guard if we could, and if we can not do so absolutely, we must be allowed to do the best we can. We must protect them from the grog shops around Army posts and the canteen has proved itself able to do this with a minimum of harm. It is, therefore, good ethics.

In addition to all this, the profits from the sale of beer belong to the soldier himself, instead of the saloonkeeper. They are used to improve his table fare. It is currently believed that the ration is sufficient, and so it is in a sense, but it is very plain, simple and unvaried. The soldier, like every other human being, needs an occasional change, a little feast now and then. He hungers for it, and spends a great deal of his pay for extra food in every army in the world. Restaurants or sutler's stores are a necessary adjunct to armies and follow them even into battle. They sell some harmful things, and it is our desire to reduce this harm by increasing the attractiveness of the table. There is a growing opinion that the company should have a few cents daily per man for this one purpose of buying extras whenever possible, depending on the commissary for the staples. We could do this fairly well when we had large canteen profits and big gardens, but now we can not. We keenly feel the deprivation. The breaking-up of the canteen has actually interfered with feeding the soldier, and has caused him unnecessary expense. For those who are not acquainted with this matter, I may explain that the canteen is a co-operative store, whose profits are divided up among the companies and spent for the soldiers' food and amusement. It is always managed by an officer in their interests.

The sooner it is restored the better, and it is hoped that our opponents who are engaged like ourselves in the crusade for temperance, will join us in re-establishing this practical instrument for good. It is a step toward temperance. I do not quote authorities or reports because they are practically all of one tenor, that the abolition of the beer feature of the canteen was a disaster. The opponents are the rare exceptions. Surely the pub-

1. Dr. Geo. W. Kober, American Medicine, Dec. 5, 1903, and reports of the Surgeon General and Secretary of War.

lic should credit these experts with unbiased knowledge of the facts at first hand. It is a notorious fact that the establishment of the canteen was violently opposed by very many officers, but as soon as it proved its usefulness, the opposition disappeared. Surely such men should not be accused of ignorance of the matter, and least of all, of viciousness. I am quite sure that every one who investigates the matter impartially will advocate the old system which proved to be so efficient and which is now desired by practically all officers, by both the abstainers and those who use alcohol themselves.

MEDICAL CARE OF INEBRIATES.*

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Inebriates rarely ever appeal to physicians for help, unless intoxicated, or in the remorseful period, when recovering from the toxic effects. The moderate drinker never considers the need of medical help. The periodic drinker may seek advice on the eve of an outbreak, but never after, until the storm is over, and he is suffering from the effects of the excess.

The friends of patients frequently ask physicians about these conditions, and sometimes bring the patient with them, who is always skeptical of the need of help. As a rule, physicians look on inebriety as a moral condition of half vice, with mental indolence and feeble will.

The first impression is to alarm the patient and to try to impress on him a fear and horror of his condition, and in this way to rouse up an antagonism to the drink impulse, or the quack method may be tried, of drugging the liquor, causing it to produce nausea and mental disgust for its taste and effects.

The quack depends on chemical restraint and the unpleasant effects from the use of spirits either by being drugged or by medicines taken immediately before or after its use, sustaining the statements that spirits are poisonous and dangerous.

There is a form of suggestion by which new thought is impressed on the mind so powerfully as to overcome the morbid impulse for drink in the future. While this is possible in a certain number of cases, it depends on so many complex conditions that its reality is very uncertain.

The patient who is impressed with the statement that alcohol is poisonous and can not be taken in the future without most revulsive effects discovers that this is a delusion, and his skepticism of relief increases, hence the last state is worse than the first.

One fact should always be considered, that the drink craze or symptom dies out from some unknown constitutional change in the organism, but when this will occur is unknown. A great many instances of reported cures from drugs or mental and moral means are simply constitutional changes, and in no way connected with the use of these means.

The treatment given in institutions or in private practice should have this one object prominent, namely, to remove the exciting causes and restore the nutrition and integrity of the organism, and in this way to promote a tendency toward a constitutional change in which the drink craze disappears.

As an office patient the inebriate should be given very exact instructions concerning the use of drugs and his conduct and surroundings. If the case is a periodic, great attention should be paid to the premonitory symptoms, and apomorphia should be given with circumspection and exactness as to time and place. Where the nutrition is greatly disturbed, phosphate of sodium combined with daily baths has a particularly valuable effect.

States of poisoning and starvation should always be recognized and considered in the treatment. Poisons introduced from without and poisons formed within are present in all cases. Low resisting pain-centers with defective nutrition, causing starvation and feeble organic activities, are also present universally. The heart is defective in action and the circulation of the blood is impaired in rhythm and uniformity. As a result there are almost innumerable signs of functional disturbances and vasomotor palsies, defective co-ordination, with faulty judgment and lowered conceptions of right and wrong.

Evidently, from this, moral treatment can have little or no effect. Each case presents a problem for itself. A certain proportion of all inebriates, particularly in the early stages, can be treated at home successfully, but each one should be made the subject of frequent visits, study and examination. Psychic treatment is of equal value with the physical. Exact duties and obligations should be put on the patient every day, and the mind should never be allowed to consider these measures of small interest. The more chronic cases should go under hospital care, where the surroundings with enforced brain and nerve rest could be made exact and continuous for a time.

The inebriate does not need diversion or change like the neurasthenic; he requires nerve rest, removal of all exciting causes and eliminative measures to correct the waste of the body. The subsidence of the drink craze is not the cure, but only a small beginning.

Most radical changes in the nutrition of conditions provoking brain strain and tension are essential. The removal of the exciting causes followed by nerve rest will enable the system to restore exhausted nerve centers and improve the metabolism of digestion. It is from steady, persistent effort to give brain and cell rest that the exhaustive conditions and psychic pain which calls for relief and finds it in alcohol and drugs can be removed. The alcoholic impulse is a sign of central nerve exhaustion and derangement and irritability of the pain centers and an unconscious call for help.

There is no doubt, in all persons who have used alcohol, a nerve tension and degree of irritation which can only be concealed or covered up by spirits and drugs. It would be apparent from this that the means of treatment must embrace a very wide range of measures that will restore the lost balance of the organism. Very interesting questions occur in every case as to the best means of giving relief and neutralizing the toxic states. The psychic treatment alone covers a very wide field, including climate, occupation, excitement, nerve rest and exhaustion.

In the physical treatment, a still wider range of means and measures suggest themselves, particularly of means to remove the exciting causes and to determine how far the brain has become deranged and the organism perverted below the health limits.

Removal of the poisons is another therapeutic measure that requires a great variety of appliances, particularly baths and measures to stimulate the elimination. Perhaps no remedies have a wider application in the treatment of inebriety than baths, vibration and massage.

* Read in the Section on Hygiene and Sanitary Science at the Fifty-seventh Annual Session of the American Medical Association, Boston, 1906.

In my experience the radiant light bath is the most powerful eliminative and restorer of the circulation of the blood to the surface. The vasomotor paralysis so common in all these cases is more thoroughly antagonized by electric light applied to the surface than by any other means known. To relieve brain tension and reduce states of excitement, atropia, combined with strychnin or lupulin, is an equally valuable combination for a large number of these cases. Bitter tonics have a great power in many cases of overcoming the derangement of nerve centers and neutralizing its functional explosions of energy.

The drink paroxysms are often prevented by these bitter tonics of which large doses of the infusion of quassia is the most valuable. The question of using these drugs with the needle is often a very serious one and involves the consideration of a great many conditions.

Questions of occupation and surroundings are equally important and essential in the treatment. As a rule, most patients should begin the treatment at home, under the care of the family physician, and if this does not produce good results it should be followed by institutional treatment, and when this terminates he may go back to the family physician and home treatment.

The inebriate is not curable by institutional treatment alone; he should be under medical care for a very long period, not to take drugs continuously, but to have the advice and counsel of the family physician.

He is practically in a more serious condition than the syphilitic. States of poisoning and exhaustion may occur at any time, unknown to him, that will again bring on the drink impulse, and unless he is in touch with his family physician escape is difficult. No physician should ever minimize the gravity of the condition of an inebriate, but should make him understand the serious disability and degeneration from this source. He is to be regarded not always as a chronic drinker, dying from delirium tremens, or premature old age, but as one who is constantly destroying his vitality and weakening the resisting powers of Nature, inviting pneumonia, or acute inflammatory diseases of any kind, and furnishing a favorable soil for the development and growth of germ diseases. He should be made to realize that the ordinary strains and drains of life and the shocks and traumatisms are made more fatal, and that he is feebler and has lower vitality than the normal man.

There is very little danger of the physician becoming an alarmist and giving an extravagant prognosis of the danger in persons who have used alcohol to intoxication and who are practically inebriates. On the other hand, a pessimistic view of the incurability of such persons is not warranted. Clinical experience and rational study both in institutions and in private practice indicate the curability of inebriety and the degree of the permanency is proportional to the accuracy of the study and the application of exact means. The great fault of the present is that the rational therapeutics of means and measures of treatment are in a very infantile stage. The moral treatment and the quack treatment predominate everything, and the rationalist, who would study and apply exact measures, is not looked on with favor. As office patients the inebriates are regarded with disgust by the physician. The seriousness of the inebriate's condition is unrecognized, as when suffering from coma and delirium, the physician treats him as responsible for this condition and deserving of suffering, which might possibly restrain him in the future, and when delirious and delusional on the street he is considered the proper subject for the policeman. His credulity in accepting the statements of quacks and attempting through their extravagant claims to escape still further increases the disgust of the physician, and yet in all this there is a field of practice which should be occupied by the regular profession everywhere.

Inebriety is a modern disease in one sense, and in another it is a very old one, but the conditions which it presents in our modern life demand study and treatment as much as typhoid fever or any other well-marked disease. There is no theory about the degeneration of an inebriate, there should be no sentiment in his medical study and care. The same causes and the same effects exist here as elsewhere. We have now come to a point in medical history when the phenomena of brain and nerve disorder can be studied and measured with comparative exactness and it is our duty to recognize its physical character and study it, not as a theory, but as a condition, which will give way to the proper means and measures. Preventive medicine in this direction is destined to occupy a very large place in medical history.

[THIS SYMPOSIUM ON ALCOHOL, BEGUN TWO WEEKS AGO, WILL BE CONTINUED NEXT WEEK.]

SOME PROFESSIONAL REMINISCENCES.*

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Every one who travels even an ordinary road has experiences of his own. If he can apply them to the good of any of his fellow-creatures he is serving in a very general way the common interests of humanity. There is always something, if he only turns his head in the right direction, that he may see in a new light.

At certain times we react more sharply to the controlling circumstances of environment than ordinarily. It is the question of the man, the gun, the aim and the game being in proper line. Too often, alas! we not only miss the mark, but get kicked by the recoil. Thus the physician, by virtue of his judicial office, soon learns not only to think before he speaks, but oftentimes not to say what he thinks. His face must never be the mirror of his soul. To manifest surprise at any unexpected change in the illness of a patient is to confess ignorance. Even death itself must always be viewed in the light of any other accident. To the one seeking advice it is always a comfort to know that his physician has well grounded and positive opinions. In fact, he can the better trust him when he is sure that his faithful adviser is never wrong. If it were otherwise, there would be no need for doctors. Filled with such heretical thoughts, I am tempted to relate some personal experiences substantiating them.

After finishing my hospital interneship and imagining that I was well prepared for the practice of the noble art, I was summoned to a sick child in a tenement. The little one was lying in a cradle, playing quite unconcernedly with a rag doll. "Not very sick," I thought; "but what can be the matter with her?" I certainly had never seen the like symptoms before. There was a general spotted eruption over the face and other exposed places, a rasping cough, bleared, lachrymose eyes and a profuse coryza. Not smallpox, I was sure, nor its reputed relation, as I had seen much of both.

"An ex-house surgeon of New York Hospital must not be worsted by such a case as this. There is one

* Read before the Charaka Club, N. Y.

thing," said I to myself, "she is not going to die in any event." Just then the grandmother of the child came from a washtub in an adjoining corner of the room and seriously added to my embarrassment by squarely, and rather disrespectfully, I thought, plumping out the question: "Docther, what is the mather with the choild?"

For self-protection I gathered my consciousness within myself, dropped my countenance curtain, and manifested a duly abstracted air, and unconcerned manner, while I took out my prescription book and pretended to be writing. I found it very convenient at that time not to hear her question. Still she stood there defiantly, with arms akimbo, with smell of suds and look of scorn, and repeated her patronizingly insistent demand. No washerwoman had ever dared do so before.

It was nevertheless trimming to a cross sea with set sails and a gathering storm. After all, she was only repeating my query. There was one other in that room that looked for the answer more eagerly than she could imagine. To gain time he took refuge in dazed and abstracted thought, adjusted his stethoscope and mutely motioned the clamorous interloper to be silent.

The bared chest showed more spots. The patient cried in fear, and due time was consumed in quieting her. The responsibility of the situation became more and more oppressive. The sonorous grunts of my critic overwhelmed any possibly abnormal auscultatory signs. The only urgent thing was the diagnosis. The last resource was in subterfuge and hypocrisy; anything but a humiliating acknowledgment of ignorance.

Again: "Docther, why don't you tell me what is the mather with the choild?"

"O yes," said I; "the fact is you would not understand it if I gave the name for the disease. The Latin term is *conjunctivitis,* and, of course, that would mean nothing to you."

Her supercilious and incredulous smile I shall never forget. Her rejoinder was electric. A new light dispelled the fog. "And is that the Latin name for *measles?*" said she.

I could have hugged the woman, suds and all, but my studied professional reserve came to my relief. "No, not the name for the *measles,* but I thought you wanted to know what ailed her eyes." Still the old woman unconsciously saved me from utter defeat and gave me my first clinical demonstration of the disease. Since then it has always been my religious duty to treat the grandmother in the sick room with becoming consideration.

Inasmuch as the patient is always the uncertain factor in the equation of chances in making a prognosis, it is always safe to be on the qualifying side of possible antagonistic conditions. Thus we all learn never to be surprised at anything that may happen.

Many years ago I was treating a young lady for typhoid fever. While she was convalescing I had been absent from town for a day or two. On my return by an evening train I called to see her on my way home. It was a casual visit, and anything unusual was far from my expectation. On attempting to ring the door bell in a dimly-lighted street my hand grasped an ominous fold of crape. I looked at the number to be sure I was at the right place. "Dead! What could have happened during my absence? Possibly perforation of the bowel or internal hemorrhage. I have been away and some other man has been called in the emergency. In any event now is the time to say little and listen."

When admitted I went at once to the room, stood on the landing for a moment and heard various voices within. "They are laying out the corpse," thought I, "and my call will be a consolatory function."

In response to my knock the door was opened by the sister, who surprised me with a smiling welcome. I walked to the center of the room and saw my patient sitting by her bed!

"Oh! doctor, we are so glad you called. Josie has been longing for you for days. She wishes to ask," continued her sister, "if she can eat some oysters."

As for the astonished physician, no actual surprise must be shown. Oysters on ice instead of my patient!

"How many oysters will satisfy you?" was my question.

"Can I have six on the half shell?"

"Yes, order eight, with crackers and lemon."

Then, taking her hand in mine and patting it encouragingly, I found myself saying: "Josie, I am so glad, so glad——"

"Glad for what?" inquired she.

"Glad that you like oysters, as I was afraid that you might not be able to eat them to-night." Here truth hypocritically shook hands with policy.

When in the hall again the sister asked me if I had not been taken aback at finding crape on the bell, at the same time explaining that an old boarder had died in the room above. The dart had simply shied a little.

"Surprised? Why, no. I knew it could not have been Josie. Why should she die now when she is recovering?" Yet for the time being I was seemingly nearer to a corpse than I cared to be again. Of course, the patient never heard of the circumstance until long afterward, and luckily for her is still able to enjoy her oysters.

In my earlier journalistic experience I conceived the possibility of giving due variety to editorial functions by contributing an anonymous criticism on a paper that had been read before the New York State Medical Society at Albany. The tone of the communication was as respectful and courteous as could be made by one who disputed the conclusions of the author, and asked for more light. The writer of the original article was, besides, a personal acquaintance who had an abundant ability to make a suitable reply.

As no answer came for a fortnight or more, I was somewhat chagrined by imagining that I had merely fired a blank cartridge thought on a half-rock calculation. This illusion, however, vanished in due time by the appearance of my opponent, who came specially from Albany to consult me on the propriety of his answering his critic. He was extremely anxious to know who had the temerity to differ with him, but in his excited state of mind I concluded that any direct statement to that effect should be a matter of subsequent and deliberate reflection. In any event, he wished me to help him make his arguments as striking as possible. There was, indeed, a ludicrously pathetic side of the situation that appealed to me, and I did my friendly duty by making several suggestions which he accepted with extreme satisfaction, and at the same time assuring him that he would effectually silence his presumptuous assailant.

The reply was duly published and I took occasion to congratulate him on his victory. It so happened that, his paper having received so much well-merited recognition, he was invited to elaborate it and present it to the Academy of Medicine. On that occasion a member who was always ready to discuss any subject rose and, to my great surprise, used all the points of argument

contained in the anonymous attack. This was enough for the author of the paper. Turning to me with smiling satisfaction, he whispered: "At last I've found the fellow. Now watch while I wind him up."

The unconscious victim little imagined that he had short-circuited a live wire that had been charging itself for months. The result was startling and overwhelming. The Academy was spell-bound at the vehemence of the author's invective sarcasm, and when the excited speaker took his seat it was plain that the victory was entirely on his side. The only comfort for the vanished one was complacently to blow and cool the finger that he had so foolishly put in the fire.

But this was not the end of the matter. For a long time afterward, whenever the volunteer critic appeared at the state meeting with a paper, he was sure to have one, at least, who would take issue with him. Nor did they ever after exchange views other than at a safe and respectful distance in the debating arena. The explosion of mutual antagonism had blown them so far apart that each was on the opposite side of any possible reconciliation. Nobody, however, knew better than I that both were at fault for meddling with somebody else's fireworks; and so at one of the meetings, I, with an innocence I could not feel, asked my Albany friend, "Why do you always worry Dr. G.?"

"Do you not remember his published criticism of my paper on fractures?" replied he.

"But he did not write it," was the rejoinder.

"Who then?"

"It was I."

"How absurd it was," he laughingly said, "that I should have come to you, of all others, for help under the circumstances."

"Yes! But didn't I do my best to help you silence the real man?" was the only excuse I could offer.

And so in my conscience-stricken way I satisfactorily untangled a ludicrous snarl of misdirected purposes.

THE ULTIMATE RESULT OF THE ROENTGEN TREATMENT OF CARCINOMA OF THE BREAST.

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A review of the literature of carcinoma of the breast during the last year reveals but little from the pens of those operators whose experience in the use of the Roentgen ray is great enough to entitle their utterances to respect and attention.

On the other hand a number of articles have appeared in the various journals which, on their face, betray ignorance and inexperience. The writer of one of these after relating a deplorable series of surgical mishaps arising during an attempt to operate on a breast which had been rayed by another operator, accuses this preliminary treatment of a number of unpleasant things and ends with a denial of the ability of the ray to produce any tissue changes whatever beyond a dermatitis, basing these sweeping assertions on an extended experience of 6 cases.

Such articles as this, which is merely an example of a number of others to which my attention has been drawn during the year, are not entirely worthless since they serve to produce a thrill of amusement and compassion in the minds of those who have sufficient experience to enable them to judge correctly of the value or otherwise of this agent in the treatment of the condition noted, but unfortunately the widespread dissemination given such misleading statements by the various journals is liable to lead to a misapprehension on the part of the profession at large who have but little time to investigate such matters and are apt to give most attention to the loudest noise.

In one such article a technic was employed for deep-seated carcinoma which was exactly suited for the treatment of lupus or superficial epithelioma and diametrically opposed to those principles enunciated repeatedly by the men who have announced certain degrees of success in the treatment of deep-seated carcinoma, primary or recurrent.

In apparent ignorance of the fact that *x*-ray possesses no power of independent judgment, the author, after using a ray which is absorbed by the skin, boldly states that from his extensive experience of 6 cases, he has proven that the radiation from an excited Crookes tube produces superficial effects only and is incapable of effecting tissue changes at a depth greater than ¼ inch below the surface.

I do not believe that any false modesty should be allowed to prevent the challenging and direct controversion of such palpable misstatements. It has been repeatedly demonstrated that a capable apparatus in the hands of a competent operator can be made to produce radiations so penetrating that they may be absorbed and rendered effective therapeutically at any depth in the body, in fact, the skin of the back may be affected even to the production of a marked dermatitis by radiation directed toward the front of the chest, thus passing entirely through the body. I do not know of any way by which those members of the profession may be taught who persistently ignore and disregard the repeated statements of those physicians who have devoted years to this work and have freely formulated and disseminated exact and explicit directions whereby any other physician of intelligence can reproduce their technic. There are none so blind as those who will not see, and the only defense seems to be the exposure of the dangerous ignorance of such writers who make up for paucity of ideas with a deluge of words and who base sweeping generalities on individual observations.

SUCCESS OF RADIOTHERAPY.

The power of the *x*-ray to effect distinct cellular change on normal or pathologic tissue is in evidence this year as it was last, with the difference that in the hands of qualified men these effects are produced with a certainty, directness and ease which is the natural result of another year's observation and experience.

At the meeting of this society one year ago, I made the strongest plea in my power for the wider adoption of anti-operative and postoperative treatment of carcinoma. The ensuing year has not convinced me of the error of the position then taken but has only served to strengthen it, and to ground the conviction more firmly that in such anti-operative and postoperative treatment in conjunction with bold and skillful surgery lies the salvation of this class of patients.

During the year some disappointments have appeared. Two cases are to be recorded as ultimate failures inasmuch as deep-seated internal recurrence has manifested itself and will probably progress to a fatal termination. Each of those two patients, however, was suffering from recurrent inoperable carcinoma which, under the influ-

ence of the ray alone, disappeared completely giving the patient over three years of health and happiness.

While it is necessary to class these cases as ultimate failures yet I think that the results obtained more than compensated both physician and patient for the trouble of taking a few painless treatments. A number of other similar cases have shown no tendency to recurrence. Neither of the cases which recurred was subjected to anti-operative treatments. In both, postoperative radiation was begun only when the appearance of marked recurrence forced the adoption of some method of treatment whereon the surgeons announced their inability to confer any further benefit by operative procedure.

If the *x*-ray is to be employed in a manner to cast credit on it as an aid in the treatment of this class of cases, anti-operative radiation must be insisted on, but if refused, postoperative radiation must be begun coincident with the beginning of recurrence at the latest, and, when the surgeon will consent, should be employed before recurrence has manifested itself, preferably the tenth day after operation. In every such case the mediastinum as well as the site of operation must be rayed.

In no case of primary carcinoma submitted to radiation without operation has recurrence manifested itself, but it must be remembered that in every such case the primary growth had advanced so little that the patient was unwilling to admit the necessity of operation. I am unwilling to believe that the satisfactory result in these cases was due to the absence of operative procedure but attribute it to the primary nature of the growth and the absence of metastasis at the time of the institution of Roentgen treatment.

During the year repeated and renewed evidence has appeared of the actual value of the ray in producing retrograde change in carcinomatous tissue. The adoption of the method of filtration founded on principles established by Roentgen and Walter applied first as a therapeutic aid and its value, proven clinically and experimentally by Pfahler of Philadelphia, has resulted, in simplifying the technic and permitting the administration of much heavier doses with consequent increase in the quickness of response of the disease to the ray. The experience of the past year has been thoroughly satisfactory.

GROWING INTEREST IN RADIOTHERAPY.

The incredulity and antagonism of certain members of the profession in spite of the misleading contradictory reports circulated by the class of observers referred to has shown a marked decrease. The profession in general are manifesting a healthy interest in the possibilities of Roentgen therapy and are beginning to ask intelligent questions thereby making the opportunity for explanation and conviction. It should be the duty during the next year, of every Roentgenologist to perfect himself in the technic of the treatment of carcinoma; to satisfy himself as to the exact value to be given the method as practiced by himself. Extreme conservatism combined with healthy investigation and repeated observation is necessary in order that we may arrive at a true determination of the exact value of this agent in this disease.

Primary carcinoma of the breast should be treated by the ray alone only when the condition or age of the patient presents a strong argument against preliminary operation. The inherent fear of surgery which so many of these patients present must not be permitted to act on our sympathies or bias our judgment but the treatment of primary cases must only be undertaken for good and sufficient reasons.

Free discussion of these problems with the surgeons when the Roentgenologist shows his freedom from prejudice is usually productive of good since when the surgeons become convinced of the actual value of the ray in preventing or retarding metastasis, they will insist that their operation be aided by such prophylactic measure.

Bold assertions of the ability of the ray to cure carcinoma wherever situated without recourse to surgery carry not conviction but contempt to the majority of the hearers and it must be remembered that an assertion of fact and a demonstration of fact are two widely different things.

While I am daily more convinced of the actual assistance which the ray is capable of affording in the treatment of carcinoma I am also more than ever certain that extreme conservatism of statement combined with practical demonstration of actual result is the best way to convince the profession of the ultimate value of radiotherapy intelligently administered as an aid to surgery, not a substitute in the treatment of carcinoma.

CONCLUSIONS.

1. Results are better and more permanent, the earlier treatment is instituted.
2. The value of postoperative radiation has become more and more apparent.
3. Mediastinal recurrence while grave is not a death warrant.
4. Technic is not an accomplishment but an absolute necessity.
5. No tube is too good to use for treatment.
6. Filters are a necessity in the treatment of cancer of the breast.
7. Treat no case that you know can be cured surgically.

611 Fulton Building.

MISTAKES IN THE DIAGNOSIS OF PULMONARY TUBERCULOSIS.*

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The possibility of limiting tuberculosis rests on our ability either to cure those infected or to prevent the infection of others. What we accomplish in both these fields depends very largely on an early diagnosis of the disease. That persons having pulmonary tuberculosis frequently fail to consult a physician in an early stage of the disease and that physicians frequently fail to diagnose early cases that are presented are well-known facts. How often and for how long a period patients are negligent of their symptoms and how often and for what reasons physicians actually fail to diagnose their cases are not so well understood. Among English writers who have recently called attention to the mistakes tabulated in this article are:

BRONCHITIS: Trudeau,[1] Butler,[2] Miner,[3] Landis,[4] Norris,[5] Mohr,[6] Pryor.[7]

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* Read before the Rhode Island Medical Society, Sept. 6, 1906.
1. Trans. Association American Physicians, 1901.
2. "Diagnosis of Internal Medicine," 1902, pp. 709 and 837.
3. Penna. Med. Jour., July, 1903.
4. Med. News, Sept. 17, 1904.
5. Med. News, Sept. 17, 1904.
6. Mobile Med. and Surg. Jour., October, 1904.
7. Med. Record, Nov. 25, 1905.

GRIPPE: Bonney,[8] Trudeau,[1] Koch,[9] Hatfield,[10] Norris,[5] Pryor,[7]

HEMOPTYSIS: Wells[11] Barbour,[12] Whittaker,[13] von Ruck,[14] Trudeau,[1] Bonney,[8] Loomis,[15], Thompson,[16] Janeway,[17] Cattle,[18] Norris,[5] Cheney,[19] and Pryor.[7]

LARYNGITIS: Chappell,[20] and Harland.[21]

MALARIA: Tyson,[22] von Ruck,[14] Trudeau,[1] Butler,[2] Miner,[3] Hatfield,[10] Norris,[5] and Pryor.[7]

MITRAL STENOSIS: Barbour,[12] Landis,[4] and Norris.[5]

PNEUMONIA: Bergtold,[23] Janeway,[24] and Norris[5]

The statistical material which forms the basis of this article was derived from the histories of 200 consecutive cases of pulmonary tuberculosis admitted to the State Sanatorium for Consumptives during the past year. The histories of 27 were excluded because for various reasons the patients' statements were considered unreliable. Eight other histories were excluded because they were incomplete, leaving 165 histories available. Of these 165 cases, tubercle bacilli were present in the sputum in 146. Of 19 cases in which the bacilli were not found, ten reacted to tuberculin, and in the remaining nine the physical signs were held to be sufficient for diagnosis without the tuberculin test. The following questions were asked:

1. When did you have your first lung symptom?
2. When did you first visit a physician?
3. When did you have your first hemorrhage, if any?
4. Were your lungs examined, and when?
5. Was your sputum examined, and when?
6. What diagnosis was given you at this first visit?
7. When did the physician inform you that you had consumption or tuberculosis?
8. When did you commence to have frequent expectoration?

The dates recorded were the year and calendar month and the evidence was carefully sifted to make sure that tuberculosis existed at the first visit to the physician, and the physicians were in all cases given the full benefit of any doubt in the matter of dates. In all diseases part of the responsibility of an early diagnosis is borne by the patient, but in pulmonary tuberculosis this responsibility is particularly heavy. Unless patients go to the physician early they can not receive an early diagnosis.

TABLE 1.

Delay of the Patient. Period Elapsed from the First Symptom to First Consultation of Physician.
Of 165 cases there was delay in 84 cases, or 50.9 per cent.
Period of delay was:

2 to 6 months in	60 cases, or 71.4 per cent.
6 to 12 months in	7 cases, or 8.3 per cent.
Over 12 months in	17 cases, or 20.2 per cent.
The longest delay was	72 months.
The shortest delay was	1 month.
The average delay was	7.9 months.

These figures emphasize the need of an organized method of informing all the people of the symptoms of early tuberculosis, the methods of preventing infection and of the insidious advance of tuberculous disease in apparently healthy people. It is doubtful whether this work will ever be well done unless it can be made a part of the instruction in hygiene in the public schools. I turn now from mistakes of patients to mistakes of physicians.

TABLE 2.

Cases diagnosed throat trouble.
Of 165 cases this mistake occurred in 4, or 2.4 per cent.
Resulting delay in correct diagnosis was:

2 to 6 months in	1 case.
6 to 12 months in	1 case.
Over 12 months in	2 cases.
The longest delay was	24 months.
The shortest delay was	3 months.
The average delay was	11.5 months.

In two cases the uvulas were amputated, and in one case the tonsils were excised after the onset of continuous lung symptoms. In these three cases last named, the cough was evidently supposed to be the result of pharyngeal irritation.

TABLE 3.

Cases diagnosed malaria.
Of 165 cases this mistake occurred in 5, or 3 per cent.
Resulting delay in correct diagnosis was:

2 to 6 months in	3 cases.
6 to 12 months in	1 case.
Over 12 months in	1 case.
The longest delay was	18 months.
The shortest delay was	3 months.
The average delay was	7 months.

No blood examinations had been made in these cases.

TABLE 4.

Showing Frequency of Chills and Sweats Previous to Admission.
Of 165 cases the patients in

22, or 13.3 per cent.,	had sweats alone.
11, or 6.6 per cent.,	had chills alone.
69, or 41.8 per cent.,	had both chills and sweats.
62, or 37 per cent.,	had neither chills nor sweats.

Of 165 cases, 35 (21.2 per cent.) patients claimed to have had malaria previous to the onset of tuberculosis. The great majority of these attacks were probably tuberculous, but the cases in Table 3 were the only ones that had been diagnosed malaria by a physician after the onset of continuous lung symptoms. Chills, fever and sweats occasionally occur in tuberculosis with sufficient regularity to suggest malaria, and so long as malaria is diagnosed without blood examinations it seems inevitable that some cases of tuberculosis will be called malaria, the number of these mistakes varying in different localities, their frequency depending largely on the prevalence of true malaria.

TABLE 5.

Failure of Diagnosis. Lungs not Examined.
Of 66 cases this mistake occurred in 8, or 12.1 per cent.
The delay in correct diagnosis was:

2 to 6 months in	7 cases.
6 to 12 months in	0 cases.
Over 12 months in	1 case.
The longest delay was	20 months.
The shortest delay was	2 months.
The average delay was	5.1 months.

The above table is probably made up largely of cases in which the physician was deceived by the healthy appearance of the patient.

TABLE 6.

Lungs Examined and Pronounced Sound.
Of 165 cases this mistake occurred in 30, or 18.1 per cent.
Resulting delay in correct diagnosis was:

2 to 6 months in	13 cases.
6 to 12 months in	7 cases.
Over 12 months in	10 cases.
The longest delay was	96 months.
The shortest delay was	2 months.
The average delay was	9.3 months.

In twelve of these thirty cases there was a history of consumption in the family. Careful histories are scarcely second in diagnostic importance to careful physical examinations. Those who have had relatives die of consumption often furnish the best opportunity for early diagnosis, as they are suspicious of their symptoms and come to the physician early. A small lesion in so large an organ as the lung can readily be missed by the most expert examiner, especially if such lesion be deeply seated. In 5 per cent. of all patients admitted to the sanatorium, tuberculosis could not be positively demonstrated by physical examination alone. In a patient

8. Boston Med. and Surg. Jour., Sept. 16, 1897.
9. Trans. British Congress on Tuberculosis, III, p. 94.
10. Med. News, Sept. 17, 1904.
11. Medical News, Sept. 21, 1895.
12. Med. Record, 1896, pp. 829-833.
13. Trans. Association of American Physicians, 1897.
14. Virginia Medical Monthly, July 23, 1897.
15. Med. Record, May 21, 1898.
16. Lancet, London, Jan. 24, 1903.
17. Med. Record, April 25, 1903.
18. The Practitioner, London, February, 1904.
19. Am. Medicine, Oct. 22, 1904.
20. THE JOURNAL A. M. A., Feb. 21, 1903.
21. Am. Medicine, June 25, 1904.
22. "Practice of Medicine," 1896, p. 66.
23. Am. Medicine, June 22, 1901.
24. Trans. British Congress on Tuberculosis, III, p. 213.

who has lung symptoms, with or without physical signs, no physician, however skilful, is warranted in stating that the lungs are free from tuberculosis, unless the patient fails to react to tuberculin.

TABLE 7.

Cases with Expectoration at the Time of First Consulting the Physician in which there was a Failure in Diagnosis Accompanied by a Failure to Examine the Sputum.

Of 165 cases this mistake occurred in 31, or 18.7 per cent.
The delay in correct diagnosis was:

2 to 6 months in	18 cases.
6 to 12 months in	7 cases.
Over 12 months in	6 cases.
The longest delay was	96 months.
The shortest delay was	2 months.
The average delay was	10.3 months.

If sputum examinations were made as a routine in all patients whose sputum could be obtained, many unsuspected cases of tuberculosis would doubtless be discovered.

TABLE 8.

Cases Diagnosed Grippe.

Of 165 cases this mistake occurred in 24, or 14.5 per cent.
Resulting delay in correct diagnosis was:

2 to 6 months in	14 cases.
6 to 12 months in	5 cases.
Over 12 months in	5 cases.
The longest delay was	120 months.
The shortest delay was	2 months.
The average delay was	10.8 months.

Of all cases, the patients in 25 per cent. had had grippe previous to the onset of tuberculosis. The physicians were credited with a mistake only in those cases in which they had diagnosed grippe after the onset of continuous lung symptoms. Tubercle bacilli were found in the sputum of all these cases. The possibility that some of these patients may really have had grippe in addition to tuberculosis at the time of visiting the physician is remote. Such a question is not likely to be raised by one accustomed to take tuberculous histories.

If it were better understood that patients with early tuberculosis in apparent good health are subject to febrile attacks closely simulating grippe or bronchitis many cases of tuberculosis masquerading as grippe would be detected by the history alone. Many more cases would doubtless be detected if sputum examinations were made whenever possible in supposedly grippe cases. It is characteristic of grippe to occur in epidemics and isolated cases should be viewed with suspicion. Finally, the tuberculin test must be appealed to in doubtful cases.

TABLE 9.

Cases Diagnosed Bronchitis.

Of 165 cases this mistake occurred in 24, or 14.5 per cent.
Resulting delay in correct diagnosis was:

2 to 6 months in	15 cases.
6 to 12 months in	5 cases.
Over 12 months in	4 cases.
The longest delay was	96 months.
The shortest delay was	2 months.
The average delay was	10.6 months.

It has been a far too frequent practice to assume bronchitis to be non-tuberculous as long as the patient's general health remains good. It has also been customary in many doubtful cases to keep the patient under observation until repeated examinations should settle the diagnosis, but the diagnosis should not be delayed until made possible by the appearance of pronounced signs. Waiting for diagnostic signs to appear is usually equivalent to waiting for the disease to progress and is not sound medical policy when other means are at hand.

Chronic non-tuberculous bronchitis occurs frequently at the two extremes of life, in asthmatics, in alcoholics, and in those whose occupations are etiologic factors, but chronic bronchitis when occurring in a young or middle-aged adult without a definite cause should be considered tuberculous unless proven otherwise. In any supposed case of chronic non-tuberculous bronchitis in which the diagnosis appears doubtful after one month's observation by a physician, the tuberculin test should be resorted to.

TABLE 10.

Failure of Diagnosis in Patients Who Spat Blood Previous to or During the First Visit of a Physician.

Of 165 cases this mistake occurred in 21, or 12.7 per cent.
Resulting delay in correct diagnosis was:

2 to 6 months in	8 cases.
6 to 12 months in	4 cases.
Over 12 months in	9 cases.
The longest delay was	96 months.
The shortest delay was	2 months.
The average delay was	17.7 months.

The probability that the blood came from the lungs in all these cases is so great that no other supposition can be seriously considered. In many cases of pulmonary tuberculosis, hemoptysis is the first symptom. This was true of 25 cases (15.1 per cent.) of the total number considered. To fail to diagnose tuberculosis after hemoptysis is an error which occurs with surprising frequency, as shown in Table 10. It is a particularly costly error because many of these cases are at such an early period of the disease that tuberculosis would not otherwise be suspected. In several of these cases the patients were told that the blood came from the throat or stomach; some do not cough before, during or immediately after the hemorrhage, the blood simply "comes in the mouth," to use the patient's expression, without other symptoms. In but four cases could a history of thorough examination of the upper air passages be obtained, although it was sought for in all cases.

Hemoptysis from heart lesions or from lung lesions, other than tuberculosis, is so comparatively rare that all pulmonary hemorrhages should be assumed to be tuberculous until proven otherwise. This rule holds good even after an injury. In two cases in Table 10 an injury to the chest was the immediate cause of the hemorrhage. Loomis[15] quotes Stricker (900 cases of hemoptysis in the German army), who shows that 50 per cent. of all cases of hemoptysis following injury are succeeded by tuberculosis. If uncompensated organic valve lesion be absent, the lungs apparently clear on physical examination and the upper air passages free from bleeding points, the case should be considered pulmonary tuberculosis unless it fails to react to tuberculin. To wait for physical signs or additional symptoms to appear is disastrous, as they frequently do not develop for many months, during which time the patient's chances of a cure will diminish or disappear.

TABLE 11.

Patients Kept in Ignorance of the Correct Diagnosis, which is Made by the Physician at Once.

Of 165 cases this mistake occurred in 4, or 2.4 per cent.
Resulting delay in correct diagnosis was:

2 to 6 months in	2 cases.
6 to 12 months in	1 case.
Over 12 months in	1 case.
The longest delay was	24 months.
The shortest delay was	2 months.
The average delay was	9 months.

It is to be regretted that the practice of keeping consumptives in ignorance of their true condition has not entirely disappeared. As a patient can be kept from infecting others only when he understands the nature of his disease, it is not right to deprive the community of the protection thus afforded. When consumptives were considered incurable the policy of deceiving the patient could be partially justified on the ground that if the person was doomed it could be of no advantage to learn of it a long time beforehand. Now that consumption is known to be curable, to withhold the diagnosis is to deliberately sacrifice chances of recovery, and it is difficult to speak of such a practice without showing some of that

bitterness which patients themselves feel who have been thus deceived. Two prominent excuses are:

First.—It is said that a person is poor, has a family to support, can not make those changes in his life which a proper treatment necessitates and that, therefore, if he must succumb he had better do it undiscouraged by a gloomy diagnosis. These patients, however hopeless because of poverty, family responsibilities and unfavorable environment, if informed of their disease, often receive, in addition to free treatment in a sanatorium, unlooked for aid from friends and charitable organizations and are thus saved from what seemed the inevitable.

Second.—It is said the diagnosis results in a shock to the patient which injures the health. Of 161 cases in which the mental effect of the diagnosis of pulmonary tuberculosis was recorded 82 patients (50.9 per cent.) were unaffected, 72 (44.7 per cent.) were temporarily depressed and 7 (4.2 per cent.) were continuously depressed after the diagnosis. It goes without saying that of the unaffected patients a large proportion considered the diagnosis unpleasant, but it was received philosophically. The cases recorded "depressed" were those in which the patients evinced some emotional disturbance, weeping, lack of sleep, or sufficient worry to annoy the patient temporarily. Seven (4.2 per cent.) were continuously depressed after learning the diagnosis. Five of these were far advanced. They failed rapidly and seemed to have so much insight into their condition that their depression was logical. The remaining two were advanced, and they gained as rapidly as could be expected from their condition. Of the four cases in which the diagnosis was withheld for fear of a shock and injury to the patients' health, no appreciable depression resulted from the diagnosis. To sum it all up, there is no evidence to show that there is any risk whatever in informing tuberculous patients of the nature of their disease.

TABLE 12.

Miscellaneous Mistakes.

Of 165 cases there were 9, or 5.4 per cent.
Out of these 9

- 5 were given no opinion.
- 2 were diagnosed "cold."
- 2 were told to "build up."

Resulting delay in correct diagnosis was:

2 to 6 months in	5 cases.
6 to 12 months in	2 cases.
Over 12 months in	2 cases.
The longest delay was	18 months.
The shortest delay was	2 months.
The average delay was	6.6 months.

It is probable that the relative proportion of the different mistakes varies in different localities, depending somewhat on the prevalence of those diseases which tuberculosis simulates and somewhat on local custom in the diagnosis of doubtful cases. In many cases diagnosed pleurisy the lung is doubtless invaded. Of 165 cases, 18 (10.9 per cent.) gave a history of pleurisy previous to the development of continuous lung symptoms. Thompson obtained a history of pleurisy in 25 per cent. of 170 cases. Febrile attacks in tuberculous individuals are too frequently diagnosed pneumonia. Of 165 cases, 14 (8.4 per cent.) gave a history of pneumonia averaging 11.8 years before the recognized onset of tuberculosis. Seven additional cases (4.2 per cent.) were diagnosed pneumonia at the onset of continuous lung symptoms. Bergtold[23] obtained a history of pneumonia of a suspicious type at the onset of tuberculosis in 13 per cent. of 193 cases. Most of these so-called pneumonias are undoubtedly tuberculous, although there is a possibility that non-tuberculous pneumonia may have immediately preceded the tuberculous infection. Finally, a non-tuberculous bronchopneumonia occasionally coexists with tuberculosis, as has been pointed out by Janeway.

TABLE 13.

Total Number of Cases in which Mistakes were Made and Resulting Delay in Months.

Of 165 cases there were

- 89 cases, or 53.9 per cent. correctly diagnosed.
- 76 cases, or 46 per cent. incorrectly diagnosed.

Of the 76 cases the resulting delay in correct diagnosis was:

2 to 6 months in	41 cases.
6 to 12 months in	15 cases.
Over 12 months in	20 cases.
The longest delay was	120 months.
The shortest delay was	2 months.
The average delay was	11.3 months.

TABLE 14.

Physical Condition on Admission of Patients Whose Cases Were Correctly Diagnosed, Classified According to the Plan Adopted by the National Association for the Study and Prevention of Tuberculosis.

- Incipient cases, 15, or 16.8 per cent.
- Advanced cases, 60, or 67.4 per cent.
- Far advanced cases, 14, or 15.7 per cent.

TABLE 15.

Physical Condition on Admission of Patients Whose Cases Were Incorrectly Diagnosed.

- Incipient cases, 6, or 7.8 per cent.
- Advanced cases, 58, or 76.3 per cent.
- Far advanced cases, 12, or 15.7 per cent.

In the majority of the 76 cases in the incorrect column more than one mistake had been made, so that the total number of mistakes greatly exceeded the number of cases. From the above tables it appears that only half as many incipient cases are obtained from the patients on whom mistakes in diagnosis have been made as from those patients who have been diagnosed at once. The inference that, because of the 11 months' delay in diagnosis on patients in Table 13 some of the incipient cases have become advanced, seems warranted.

Some of the mistakes recorded in the foregoing tables are best described as carelessness, yet it seemed probable that a large number of mistakes on early cases were due to the physician being taken off his guard by the healthy appearance of the patients. The typical appearance of advanced consumptives is so deeply impressed on both physician and layman that they are slow to suspect tuberculosis in any one of robust appearance. Patients with early and curable lesions frequently look a little tired or worn, but very rarely "consumptive." In Table 16 the physical appearance on admission of 191 patients has been classified as "healthy," "worn" or "consumptive." In those classified as "healthy" one would not have suspected ill-health from the appearance. Those classified as "worn" had a tired look about the face as though they were overworked or had not been sleeping well, and those classified as "consumptive" had sufficient pallor or emaciation to suggest consumption, although in many cases the picture was by no means typical.

TABLE 16.

Showing Appearance of Patients on Admission, Whether Healthy or not, Classified According to Physical Condition.

Of 21 incipient cases the appearance was:

- Healthy in 14 cases, or 66.6 per cent.
- Worn in 6 cases, or 28.5 per cent.
- Consumptive in 1 case, or 4.7 per cent.

Of 134 advanced cases the appearance was:

- Healthy in 36 cases, or 26.8 per cent.
- Worn in 50 cases, or 37.3 per cent.
- Consumptive in 48 cases, or 35.8 per cent.

Of 36 far advanced cases the appearance was:

- Healthy in 1 case, or 2.7 per cent.
- Worn in 1 case, or 2.7 per cent.
- Consumptive in 34 cases, or 94.4 per cent.

Summary of patients' appearance:

Of 191 cases the appearance was:

- Healthy in 50 cases, or 26.1 per cent.
- Worn in 56 cases, or 29.3 per cent.
- Consumptive in 85 cases, or 44.5 per cent.

The diagnosis of pulmonary tuberculosis in people who look well or a little worn, rather than in those people whose physical appearance would indicate consumption, is the diagnosis of most value both to the patient and the community. In cases in which the diagnosis is in doubt it is sometimes possible to institute an open-air régime during the period of uncertainty, in the hope that if the case is finally found to be tuberculous no time will be lost. It so rarely happens, however, that a patient will take treatment conscientiously until a positive diagnosis is made that this method of temporizing is impracticable. It is not usually necessary for the specialist to use tuberculin, because he sees few cases that have not been subjected to the waiting policy either of the patient or physician, but if we are to abandon this waiting policy then tuberculin is at present essential, because without its use many incipient cases of pulmonary tuberculosis can not be promptly diagnosed. In a patient who has symptoms or signs of pulmonary disease the possibility that a tuberculin reaction may be due to an extra-pulmonary lesion is so remote that it may safely be disregarded.

That there is sometimes difficulty in having the temperature taken every three or four hours for the tuberculin test is appreciated; in those who can afford a nurse for a few days this difficulty is easily disposed of. The taking of the temperature in test cases might properly be made a part of the duties of district nurses. Sanatoriums are only too glad to test doubtful cases which can not be diagnosed at home. Patients who refuse the test relieve the physician of further responsibility. In judging of the accuracy of diagnosis from the above tables it may occur to any one that some patients may have purposely been given an incorrect diagnosis (grippe, bronchitis, etc.) to reassure them. This possibility may be admitted without affecting the general result, as it is only the correct diagnosis given the patient that is of value. Again, some patients do not return to the physician after the first visit, so that the latter does not have a fair opportunity to correct errors. In order to make full allowance for this possibility, 24 cases which had been given an incorrect diagnosis were struck out from the column of mistakes, because the mistakes were discovered within two months after the first visit to the physician. Some of these 24 cases thus placed in the correct column were of patients who had been given an incorrect diagnosis without an examination of the lungs. To place such cases in the correct column merely because the mistakes were discovered by some one else within two months seems very liberal, yet it was thought best to err on the safe side. The excluding of all mistakes, causing a delay of less than two months, allows sufficient time to diagnose doubtful cases and also a margin for slight inaccuracy of dates.

In regard to the reliability of patients' statements, it has been assumed that intelligent patients are competent to give evidence on prominent facts about their illness, concerning which there is no motive for misrepresentation. The opportunity of testing the accuracy of the statements of these patients has been afforded by the records of sputum examinations of the State Board of Health. Of 55 cases in which the dates of sputum examinations as given by the patients could be compared with the records of the State Board of Health, the year and month were given correctly in 46 cases. There was a variation of one month in 7 cases and a variation of more than one month in 2 cases. Since in these statistics all mistakes of less than two months have been excluded, 53 of the 55 patients were correct in their statements according to the standard employed, giving a percentage accuracy of 96.3.

CONCLUSION.

There can be no certainty that the patients admitted to the sanatorium fairly represent the whole number of tuberculous patients in the community in regard to their delay in consulting the physician or to the physician's delay in diagnosis. Inasmuch as the sanatorium does not accept the worst cases, it seems possible that it receives those who have been more wisely handled than the average of all tuberculous patients in the community. Whether or not histories of sanatorium patients, however accurate, can be a safe index of the mistakes in diagnosis in the community, the following summary of patients thus far admitted to the State Sanatorium is suggestive:

1. The presumable duration of the disease before admission averaged 15.4 months.
2. 50.9 per cent. have delayed consulting a physician, such delay averaging 7.9 months.
3. 2.4 per cent. have been diagnosed "throat trouble."
4. 3 per cent. have been diagnosed malaria.
5. 12.1 per cent. have been incorrectly diagnosed without an examination of the lungs.
6. 18.1 per cent. have had their lungs examined and pronounced sound.
7. 18.7 per cent. have been incorrectly diagnosed without an examination of the sputum (sputum being present).
8. 14.5 per cent. have been diagnosed grippe.
9. 14.5 per cent. have been diagnosed bronchitis.
10. 12.7 per cent. have not been correctly diagnosed after hemoptysis.
11. 2.4 per cent. have had the correct diagnosis purposely withheld from them by the physicians.
12. 5.4 per cent. have had unclassified mistakes in the diagnosis.
13. 46 per cent. have been incorrectly diagnosed, the resulting delay in correct diagnosis averaging 11.3 months.

This optimistic and fatal waiting policy should be sharply abandoned. The significance of hemoptysis should be appreciated. A tuberculous history should be sought for in all lung diseases, and in atypical and doubtful cases of grippe, bronchitis and malaria the diagnosis should be promptly made by tuberculin when other means fail. If the number of curable cases which a santorium receives is small, its usefulness is correspondingly limited, and our professional pride should not allow the willingness of the state to finance the treatment of curable cases to surpass our ability to furnish the cases.

Clinical Notes

THE DEMONSTRATION OF SPIROCHÆTA PALLIDA IN LESIONS OF ACQUIRED SYPHILIS.*

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Of the various methods employed to establish the etiologic relation of *Spirochæta pallida* to syphilis, those concerned with its demonstration in syphilitic tissue have received comparatively little attention.

The first positive findings are reported by Berterelli and Volpinio,[1] who examined the liver and spleen of children dying of hereditary syphilis. It was not until Levaditi, by modifying the Ramon y Cajal method for

*Paper read and sections demonstrated before the Pathological Society of Philadelphia, Jan. 10, 1907.

1. Finger: Wiener Klin. Wochschr., 1906, vi.

nerve fibers, formulated an exact staining method, that spirochetes were demonstrated in sufficient quantities to make it a valuable means of studying the organism within the tissue. His method is as follows: Small pieces of tissue about 2 mm. in thickness are hardened in formalin 10 per cent. for twenty-four hours, and then alcohol for the same period and subsequently washed in water for a short time. They are stained in a freshly made solution of silver nitrate 1.5 per cent. for three successive days, changing the solution each day, maintaining a blood temperature and excluding light. The tissue is then placed in a 2 per cent. solution of pyrogallic acid with the addition of 5 per cent. of formalin. After remaining in this for twenty-four hours, light being excluded, they are passed through 85 per cent., 95 per cent. and absolute alcohol, respectively, imbedded in paraffin and cut at about 5 microns.

By this means A. Buschke and W. Fischer[2] demonstrated spirochetes in a chancre, secondary papules and in the heart muscle of a child dying of congenital syphilis, and Levaditi and Manouelian[3] report positive findings in two chancres and secondary papules, as well as in syphilitic tissue from apes artificially inoculated with syphilis. Finger[1] describes the organism in two chancres, one being of the gangrenous type, and Ehrmann[4] found the organism in the epithelium covering non-ulcerated secondary lesions. Buret and Vincent[3] and Veiklon and Girard[3] report positive findings in chancres and in the secondary roseola. A. Blaschko[5] examined four chancres and one condyloma, and Rueter[6] found *Spirochæta pallida* in a gumma of the lung and in an interstitial pancreatitis, the lesions being of congenital syphilis. He also found them in the wall of the aorta, the patient having a sclerosis of the Dohle-Hellerschem type. From his studies he concludes that *Spirochæta pallida* is not to be demonstrated after mercury has been ingested for a short time.

We were unable to find reports of the presence of *Spirochæta* in tertiary lesions of acquired syphilis.

PERSONAL OBSERVATIONS.

During the past four months we have been engaged in the study of syphilitic tissue, with the object of determining the presence or absence of *Spirochæta pallida* in the lesions of acquired syphilis. In selecting the specimens care was taken to include with preference only non-ulcerated and non-eroded lesions. This was possible with the majority of papular syphilides, and to a limited extent with the chancres. In tubercular lesions the periphery was selected, at a point showing the least ulceration, the object being to avoid contaminations of spiral organisms. The method of Levaditi has been employed, and we believe it to be the best method for staining the tissue *in toto*.

The specimens were removed from twenty-four patients suffering with acquired syphilis, the lesions including chancres, various papular lesions, tubercular syphilides and one gumma. As controls, lesions of chancroids, chancroidal bubo, psoriasis, scabies, acne vulgaris, varicella and venereal vegetations were studied. Normal skin taken from individuals was stained in the same manner and studied. The following is a report of the findings in each case:

CASE 1.—J. D. Syphilis of five months' duration. Was taking potassium iodid for 2 months prior to examination. There was still induration present at the site of the chancre. No syphilitic lesions present. Has an iodid acne on the back, one being removed from the back and examined. No spirochetes were found.

CASE 2.—W. U. Chancre in sulcus. Fading, slightly pigmented macular eruption on back and chest. Macule removed from back. No spirochetes found.

CASE 3.—A. H. Chancre three months previously. Profuse general eruption of large papulo-squamous syphilides. No treatment. Epithelium intact, a few spirochetes were found in the cellular infiltrates.

CASE 4.—H. P. Eruption of five days' duration. History of sore on penis four weeks ago. Profuse maculo-papular syphilide. Marked round cell infiltration; no spirochetes found.

CASE 5.—H. T. Chancre in sulcus. Discrete papular syphilide. No treatment. *Spirochætæ pallidæ* were found in moderate numbers in the papillæ and in the connective tissue lymph spaces. After five weeks' treatment of mercury in pill form, 1 gr. daily, no spirochetes were found in a pigmented portion of skin removed from the back, marking the site of a syphilitic papule.

CASE 6.—W. H. A. History of chancre 7 months ago. Was treated at once for two months with pills, and then irregularly until five weeks ago. For the past five weeks had no treatment. Now has a discrete papular syphilide on the back and mucous patches on the tongue and lip. Papule removed from back. No spirochetes were found.

CASE 7.—A. H. Syphilis of 18 months' duration. Has been taking mercury and potassium iodid. Has an iodid acne, one lesion of which was removed. No spirochetes were found.

CASE 8.—J. C. Chancre and general syphilitic macular eruption. Was circumcised and part of the chancre, the skin of the prepuce, together with a mucous patch from the scrotum and a macule from the leg were examined. *Spirochætæ pallidæ* were found in moderate quantities, in the chancre, mucous patch and macule. Were not found in the skin of the prepuce.

CASE 9.—G. A. Syphilis of 3 months' duration. Had neglected treatment. Took eight mercurial inunctions and then discontinued treatment until eighteen days ago when he began to take mercury in pill form. A fading, maculo-papular eruption is still present, a papule being removed. No spirochetes were found and very slight round cell infiltration.

CASE 10.—J. Mc. Had been admitted to the Philadelphia General Hospital three times in the past eight years, for the treatment of recurrent tubercular syphilides. Has a large lesion on the left arm, a piece of which together with the healthy adjacent skin were removed. He has taken no treatment for the past four years. Spirochetes were present in moderate numbers. They occurred in the deeper connective tissue, some distance from the ulcerated surface, and lying free in the lymph spaces. The adjacent skin contained no spirochetes.

CASE 11.—W. G. Chancre was removed by circumcision, and a syphilitic papule removed from the back. *Spirochætæ pallidæ* were present in the chancre. In the papule the epithelium was intact, *Spirochætæ pallidæ* were found in the papillæ and in the lymph spaces of the corium. A pigmented portion of skin marking the site of a papule was removed after the patient had taken mercury in pill form for 9 weeks. Examination showed no spirochetes or cellular infiltration, the section appearing as normal skin.

CASE 12.—J. W. Syphilitic papule removed from back. Had been taking mercury in pill form for three days. Spirochetes were present in small numbers between the cellular infiltrate and within the lymph spaces.

CASE 13.—P. Mc. Chancre obtained by circumcision. A maculo-papular syphilide removed from the back and from the arm. No treatment. Chancre shows pronounced round cell infiltration. No spirochetes found in epithelium. The blood vessel walls were thickened, especially the media and adventitia. A number of spirochetes were found diffusely in the tissue of the chancre and the papule of the arm, but none were found in that removed from the back.

CASE 14.—J. F. Chancre removed by circumcision and syphilitic papule removed from the back. No treatment. Chancre

2. Deutsch. Med. Wochschr., 1906, xxxii, p. 752.
3. C. R. Soc. d. Biol., Paris, 1906.
4. Dermat. Ztschr., Berlin, June, 1906, xiii, 393.
5. Med. Klin., Berlin, April, 1906.
6. Zeit. f. Hyg. u. Infect. Krank., 1906, 49.

showed marked round cell infiltration and a moderate number of spirochetes. The papule from the back showed but slight round cell infiltration and spirochetes were demonstrated only after a most diligent examination.

CASE 15.—Syphilis of several years' duration. Portion of periphery of tubercular syphilide removed from leg. No spirochetes were found.

CASE 16.—Syphilis of 9 months' duration. Neglected treatment. Recurrent eruption, mucous patches in mouth and anal condyloma. Was circumcised and a portion of the skin of the prepuce, together with a condyloma of the anal region examined. Spirochetes were found in the condyloma but not in the skin of the prepuce.

CASE 17.—B. R. Treated for syphilis by mercury in pill form for eight days. Prepuce removed by circumcision and a mucous patch on it and a condyloma of the anus examined. Spirochetes were found in the mucous patch of the prepuce but not in the condyloma.

CASE 18.—Chancre removed by circumcision and a syphilitic papule taken from the buttocks. No treatment. No spirochetes were found in the chancre and the sections of the papule were also negative.

CASE 19.—J. B. Profuse maculo-papular eruption present over entire body. No treatment. *Spirochætæ pallidæ* were found in large numbers in a papule removed from the back. A great number were present in the skin papillæ, and some sections show similar organisms between the epithelial cells.

CASE 20.—J. K. Syphilis of fourteen months' duration. Has a large tubercular syphilide on the right leg, a portion at the periphery of the lesion and the adjacent healthy skin were examined. In one section a few spirochetes were found lying free in the lymph spaces, and in another after a careful search they were demonstrated in the depth of the tissue.

CASE 21. J. R. Chancre removed by circumcision and a papule taken from the side of the chest. Section of the chancre showed pronounced round cell infiltration and a moderate number of spirochetes, lying between the cells. The epithelium of the papule is intact, no spirochetes between the cells. There is a moderate infiltration of round cells and a small number of spirochetes diffusely distributed between the cells, a few occurring around the capillaries of the papillæ.

CASE 22.—Syphilis of 4 years' duration. Portion of tubercular syphilide removed from the leg. Specimen showed connective tissue hyperplasia and moderate amount of cellular infiltrate. No spirochetes were demonstrable.

CASE 23.—H. P. Had two well defined indurated ulcers on the reflected layer of the prepuce. Patient was observed for ten weeks and is still under observation but shows no evidence of a secondary eruption on the body. At the end of ten weeks distinct mucous patches occurred on the glans penis. Prepuce was removed by circumcision and a piece of normal skin from the back. No spirochetes were found in the sections of the chancre, the skin of the prepuce or back.

CASE 24.—Through the kindness of Dr. A. O. J. Kelly a specimen of gumma of the brain was obtained directly from the autopsy table. A history of this patient states that he was unaware of a syphilitic infection and had never taken anti-syphilitic treatment to his knowledge. A portion of the gumma removed from the periphery shows spirochetes identical with those found in primary and secondary lesions of syphilis. They are present in large numbers at the periphery, the remaining tissue is necrotic.

Four lesions of psoriasis, from different patients, showed hyperplasia of the connective tissue, but nothing resembling the spirochete. Tissue from six cases of scabies showed only a slight degree of cellular infiltration and separation of the connective tissue due to serous exudation. Three lesions of varicella from one patient showed necrotic epithelium and serous exudation. A short organism, resembling a bacillus about 4 microns in length, was found lying between the connective tissue bundles. Nothing resembling the spirochete was found. Venereal vegetations from three patients showed marked papillary and connective tissue hyperplasia, but no spirochetes. Fifteen sections of normal skin from different individuals were examined with negative results. Nine chancroids and two chancroidal buboes were submitted to a careful examination with negative results.

It will be seen that observations were made on 24 patients, subjects of acquired syphilis, from whom 34 pieces of tissue were examined. They include 7 chancres, 19 cutaneous secondary lesions, together with 3 pieces of healthy looking skin from patients with lesions of syphilis, 4 tubercular syphilides and 1 gumma.

In these 24 cases positive findings were obtained in 14 and negative in 10. In the patients giving a negative result, 7 had received antisyphilitic treatment and 3 had not. It is the consensus of opinion that *Spirochætæ pallidæ* are not found after mercury has been taken for some time. This has been the case with the patients we have examined, the organism disappearing before the cutaneous manifestations. The time of the disappearance of the organism after the ingestion of mercury is not known. In two cases in which spirochetes were found before the taking of mercury, none could be demonstrated after five and nine weeks of mercurial treatment. They were found in one patient after taking mercury for three days, and in another after eight days. In the seven patients where the examinations were negative, they had been taking treatment from seventeen days to eighteen months.

With a few exceptions it required a careful and diligent search to determine the presence of this organism. One is very likely, at times, to be confused by the similar, but not identical, appearance of elastic tissue, and we are led to believe that observers who report the finding of large numbers of spirochetes in the wall of blood vessels may have made this mistake.

Spirochætæ pallidæ are always the same, no matter in what tissue they may be found, but the morphology may vary somewhat, depending on the character and age of the lesion. Staining of tissue *in toto* is not the best means of demonstrating the morphology of the organism and in estimating its length the cutting of the section must always be considered.

In recent lesions the organisms are distinctly spiral, taking a black stain, showing from four to twelve curves, and are clear cut. In tertiary lesions they seem to lose some of their distinctness of outline and assume a more wavy appearance. They may be found isolated or grouped in small or large numbers, and as a rule, occur in largest numbers in the lymph spaces. They are also to be demonstrated in the epithelium, but not constantly.

From the findings one must consider all lesions of syphilis contagious, and handle them with due care. Spirochetes have never been demonstrated in the healthy skin, even where this was taken directly adjoining a syphilitic lesion. As far as our observations go, we have been unable to demonstrate spirochetes in other than syphilitic eruptions, occurring in subjects of syphilis.

In conclusion, we may say that the frequency with which this organism has been demonstrated in syphilitic lesions, by numerous observers, the results of inoculation experiments on apes and the relation which this organism bears to mercury, all speak in no uncertain terms for its specificity in the causation of syphilis.

We desire to thank Dr. A. O. J. Kelly for extending to us the facilities of the German Hospital Laboratory and for many courtesies extended in the preparation of this paper. We are greatly indebted to Mr. Karl Becker for valuable assistance in preparation of the specimens.

RECOVERY FROM LEUKANEMIA.*

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Patient.—The case here reported is that of a child, aged 6, youngest of seven children, two of whom died during early life of scarlet fever. The parents are both healthy and there is no specific taint.

History.—This child was always well, was a breast-fed infant, and the only illness from which she had suffered was an attack of measles two or three years ago. She never had malaria, rheumatism, or influenza. Her color was always good, she was not short of breath, and could run and play as well as any other child of her age.

Wednesday, May 3, 1905: She went to school and seemed in her usual health.

Thursday, May 4: She was taken sick with general malaise, nausea, headache, no chill; temperature in the afternoon was 101 F. Thursday night she began to vomit, and Friday the vomiting was incessant; she was very restless, tossing about the bed continuously; the evening temperature reached 103. Her bowels were not loose, nor had there been anything in the diet which might suggest a cause for the vomiting.

Saturday, May 6: The vomiting ceased, she was very restless; during the day she passed about one pint of bloody urine, there was no bleeding from the bowel. About this time it was noticed that she was becoming very pale, she appeared pallid with a slight icteric tint. Her evening temperature rose to 103.

Sunday evening, May 7: Temperature was 104.5, pulse 160.

Examination.—There was a double pericardial friction sound heard at the base of the heart, and a venous hum heard in the vessels of the neck and over the pulmonary cartilage. Lungs were negative. Liver was somewhat enlarged. The spleen extended two finger's breadth below the free border of the ribs and was easily palpable. The child was very restless and delirious; there was no vomiting. Urine was negative, no blood and no bile.

Blood Examination.—A blood examination and count made on this day, gave 1,530,000 red blood corpuscles; 132,800 white blood corpuscles; 20 per cent. hemoglobin (Fig. 1).

Polynuclear neutrophiles	58.75 per cent.
Lymphocytes, large and small	19.50 per cent.
Unclassified	6.00 per cent.
Mononuclears and transitional	4.25 per cent.
Basophiles	.50 per cent.
Myelocytes	10.75 per cent.
Turke's cells	.25 per cent.

There were 20,000 nucleated red cells per c. mm.

Megaloblasts	10 per cent.
Normoblasts	68 per cent.
Metrocytes	19 per cent.
Microblasts	1 per cent.

Urine: Specific gravity was 1020, no albumin, no sugar. Microscopic examination showed uric acid crystals, no blood, no pus cells.

Course of Disease.—Tuesday, May 8: The temperature ranged from 101.2 to 102.4, respiration was 30, pulse varied from 140 to 148.

Wednesday, May 9: Temperature ranged from 101 to 103, pulse, 146; respiration 30.

Thursday, May 10: Temperature ranged from 101 to 101.2; pulse from 132 to 144; respiration, 30.

The child's condition was much improved; the pericardial friction sound was less distinct. The area of precordial dulness extended one inch to the right of the border of the sternum; spleen and liver were still palpable and the anemia and pallor were still pronounced.

Blood examination: 1,000,000 red blood corpuscles, 132,000 white blood corpuscles, 20 per cent. of hemoglobin.

Friday, May 11: Condition was about the same.

Saturday, May 12: Temperature ranged from 98 to 100, pulse from 118 to 120, respiration from 24 to 28. Area of pericardial dulness extended two fingers' breadth to the right of the sternal edge. The double pericardial friction sound had disappeared; the systolic murmur over pulmonic interspace and the venous hum in the vessels of the neck were still present. The spleen could be palpated two inches below the free border of the ribs.

Blood count: 1,500,000 red blood corpuscles, 36,000 white blood corpuscles, hemoglobin, 20 per cent.

Differential count:

Polynuclear neutrophiles	56 per cent.
Lymphocytes, large and small	20 per cent.
Mononuclear and transitional cells	14 per cent.
Unclassified	4 per cent.
Eosinophiles	1 per cent.
Myelocytes	5 per cent.
Nucleated red cells 10,800 per cubic mm.	
Megaloblasts	3 per cent.
Normoblasts	94 per cent.
Metrocytes	3 per cent.

Sunday, May 13: Temperature, 99.3; pulse, 112; respiration, 24.

Monday, May 14: Temperature, 99; pulse, 112; respiration, 24.

Tuesday, May 15: Blood count: 2,335,000 red blood corpuscles, 14,400 white blood corpuscles, hemoglobin, 40 per cent. (Fig. 2).

The venous hum was still present in the vessels of the neck. The spleen and liver were not palpable; pallor was less marked. Urine was negative. The area of pericardial dulness was less and the pericardial friction murmur could again be heard.

From this time on the improvement was quite rapid and progressive, the hemoglobin registering 60, 70 and 90 per cent., and finally, in three months, 100 per cent.

Fig. 1.—Enormous increase in leucocytes on May 7.

The child was then up and about and seemed normal in every respect.

This appears to be a case of toxemia of unknown origin, but producing a rapid destruction of red cells, with marked stimulation of the bone marrow and spleen, so that all the cells characteristic of leukemia appeared in large numbers in the circulation. The destruction of the red cells was so pronounced that the blood findings also resembled those of a pernicious anemia.

The blood contained many macrocytes, showed granular degeneration, polychromatophilia, relatively little poikilocytosis, showed endoglobular changes, megaloblasts, marked aniscytosis, pyknotic changes in the nuclei of the red blood corpuscles, and the average red cell not lacking in hemoglobin.

Perhaps in that it is not unusual in children, during the initial rise of a severe leucocytosis, to find immature leucocyte forms in the circulation, including myelocytes and nucleated red cells, this case is one of an unusually

*Read before the Society of the Alumni of Bellevue Hospital.

high count accompanying a severe infection with an enormous erythrocyte destruction.

von Leube in 1901 described a somewhat similar case. The patient was a boy, aged 10, who suffered apparently from a combination of myelogenous leukemia and pernicious anemia running a very acute course of about three weeks, with clinical symptoms of an acute infectious disease with hemorrhages. The red cells were reduced to 266,000; numerous nucleated reds were present, of which 70 per cent. were megaloblasts. The white cells numbered 10,000.

Differential count showed: Lymphocytes, 40 per cent.; polynuclear leucocytes, 44 per cent.; neutrophilic myelocytes, 13 per cent.; large mononuclear leucocytes, 2 per cent. The bone marrow was hyperplastic and red, and there were myeloid changes in the spleen and liver. The name of leukanemia was suggested by von Leube for this condition.

Luce in 1903 described another case in which the white cells were at no time increased over 81,000; the red cells were 1,200,000, and hemoglobin 30 per cent.

Differential count showed: Polynuclear neutrophiles,

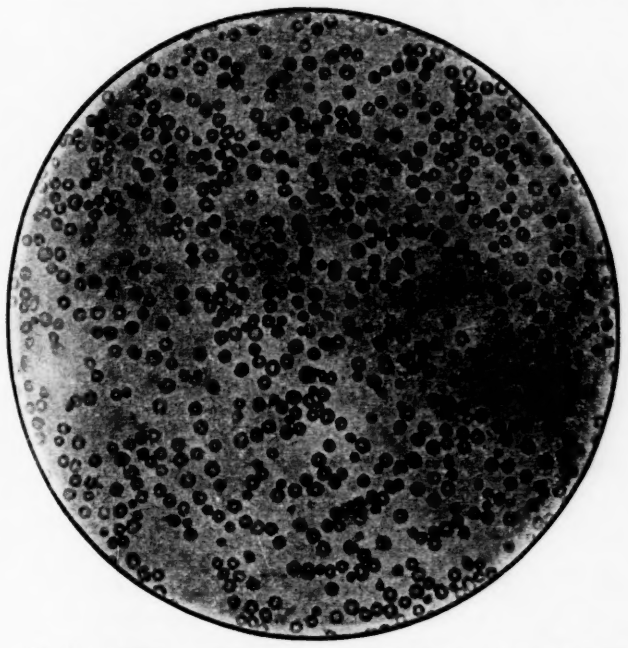

Fig. 2.—Return to practically normal blood in 8 days, May 15. Contrast with Fig. 1.

46 per cent.; large lymphocytes and non-granular myelocytes, 49 per cent.; small lymphocytes, 4 per cent. The autopsy showed leukemic infiltration of the liver and kidneys.

A case of von Jaksch seems related on the one hand to acute myelogenous leukemia, and on the other hand to an acute infectious process. The patient had marked anemia with multiple areas of periostitis and enlargement of the spleen, liver and lymph nodes. The leucocytes varied between 10,000 and 70,000, from 4 to 30 per cent of neutrophilic myelocytes being present. There is no evidence that this case could not be considered an irregular type of myelogenous leukemia, the blood picture being altered by the acute periostitis, a phenomenon often observed when leukemia is complicated by an acute infectious process.

I have yet to find in the literature a case with such enormous blood changes, as the one which I report, terminating favorably.

In conclusion I desire to thank Mr. L. B. Goldhorn for checking some of the blood counts, also Dr. L. Emmett Holt, whose assistant confirmed some of the differential counts.

A RAPID AND SIMPLE METHOD OF STAINING SPIROCHÆTA PALLIDA.*

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In a former paper[1] I pointed out that a solution of methylene violet (Bernthsen's), methylene blue and eosin in methyl alcohol makes an excellent stain for blood films, and suggested the use of such a solution for staining *Spirochæta pallida*. With the very limited number of film preparations then at hand, some fair results were obtained by this method. Recently it has been possible to get a large number of films from a case of primary syphilis and to test more thoroughly this stain. The result has been so good that it seems the method may be of value in diagnosis.

The case occurred in the practice of Dr. Simpson, and he has very kindly furnished the following history:

Patient.—Male, aged 21, presented himself Jan. 2, 1902, on account of a sore on penis.

History.—Father living and well; mother dead of tuberculosis; one brother and one sister living and well. He gave a personal history of venereal disease, otherwise negative. He had had no previous venereal disease.

Present Illness.—Patient was exposed in intercourse Nov. 21, 1906. About December 1, three sores appeared on penis, one on the right side near the corona glandis, one on the dorsum and one near the frenum. These were treated locally and healed December 18. About December 24 patient noticed a new lesion on the left side; this started as a small elevation which later ulcerated. It was hard and painless. He did not notice any other sores.

Examination.—Patient was well developed and well nourished. Penis showed three ulcers, one on dorsum just back of the glans, about the size of a coffee bean, one on the left side slightly larger, and one near the frenum somewhat smaller. All were very hard, cartilaginous and insensitive. Left inguinal lymph glands were enlarged but not painful. The ulcers were touched with carbolic acid and a dusting powder applied; the skin over the swollen glands was painted with iodin. On January 6 smears were made from one of the ulcers and stained, with negative results. On January 8, fluid was withdrawn from the swollen inguinal gland by needle puncture; coverglass films from this showed *Spirochæta pallida* in every preparation.

METHOD OF STAINING.

The staining solution requires the following: Pure absolute methyl alcohol, medicinally pure methylene blue, and a good yellowish eosin and methylene violet (Bernthsen's, insoluble in water). The last-named substance is easily made from methylene blue by heating with alkali in very dilute solution. The raw product, which I have designated as crude methylene violet, may be used. The stain is a saturated solution of methylene violet in methyl alcohol, to each one thousand parts of which, one part of methylene blue and two parts of eosin are added. The following formula is one I have used:

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*From the Bacteriological Laboratory, University of West Virginia, Morgantown, W. Va.

1. Jour. of Infect. Dis., 1906, iii, 422. Full directions for making methylene violet are there given.

Methylene violet (crude)		25
Methylene blue (med. pur.)		10
Eosin (yellowish)		20
Methyl alcohol (pure)	100	

The dyes are dissolved in the warm alcohol by repeated shaking and then allowed to stand at room temperature for twenty-four hours before using. A bottle with a well-fitting ground glass stopper should be used.

The staining technic is in principle that of Leishman. The cover-glass is held in a suitable forcep and covered with the staining solution. This is allowed to act undiluted for forty-five to sixty seconds. By this means the specimen is fixed and thoroughly permeated with the alcoholic solution at the same time. The preparation, with the alcoholic dye still on it, is now quickly immersed in about 10 c.c. of a 1:20,000 solution of sodium carbonate, and the mixture stirred by tilting the dish. The dilute alkaline solution is conveniently prepared immediately before use by adding one drop of a 1 per cent solution sodium carbonate to 10 cubic centimeters of distilled water in an Esmarch dish. By this means the alcoholic stain is suddenly greatly diluted by the alkaline water, and in this dilute watery mixture the staining rapidly completed. After one or two minutes the cover-glass is removed, washed in distilled water, the back carefully cleaned and dried on blotting paper, and the preparation mounted in water and examined with the oil immersion objective.

The leucocyte protoplasm should be blue, the nuclei purple, erythrocytes grayish blue or pink according to the amount of washing with water. The plasma film should contain a fine granular deposit all through, giving it a reddish tint. This should not appreciably obscure the field. If this finely granular background is absent the preparation is probably insufficiently stained. It may be dried between filter papers and stained again in the same way. Weak staining indicates, as a rule, that the methyl alcohol is not saturated with the methylene violet.

The examination of the preparation is best undertaken in the water mount. With a little care one can use the oil immersion objective very satisfactorily. A mechanical stage is a great convenience in thoroughly searching the preparation.

The *Spirochæta pallida* is intensely stained by this method, and readily catches the eye as the field moves under the microscope. It is characterized by its *regular, smooth* and *narrow* corkscrew windings, and, as a rule, is easily distinguished from bits of chromatin threads or other similar pictures found in these preparations. An inexperienced observer might, however, mistake some of these for it, but hardly after a previous careful study of a good specimen of the organism. To make a permanent mount the preparation should be blotted, allowed to dry several hours at room temperature, and finally mounted in rectified balsam. Fading is then very slight.

PRECAUTIONS.

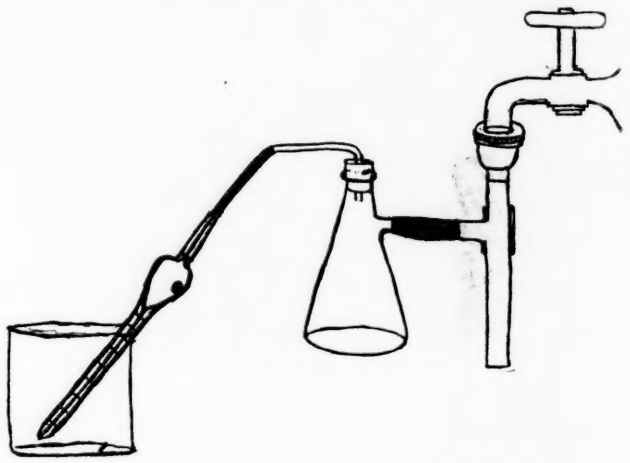
In order to find the spirochetes in a case of syphilis, films should be made before treatment is instituted, as their number is greatly reduced by the use of mercury, and the difficulty of finding them correspondingly increased. In the above case it was not possible to find them in the primary lesions, probably because of the previous cauterization and other local treatment. The lymph gland puncture revealed the organism at the first trial. The films should be made as thin as possible, using the edge of the cover-glass or slide to spread the material. The examination of the stained specimen must be made with a good light and a wide iris diaphragm, and with clean lenses of good defining power. The preparation must be thoroughly gone over. Failure to find the spirochete means little or nothing as regards diagnosis, but the discovery of this extremely slender spiral in the primary sore, or better in the swollen lymph glands, is of about the same value in the diagnosis of syphilis as the finding of acid-fast bacilli in the skin nodules of leprosy, or of similarly acid-fast bacilli in the sputum of pulmonary tuberculosis. In the case from which the films for this work were obtained the diagnosis was somewhat obscure until the spirochete was found. The patient presented three primary lesions equally hard, and he was very doubtful about the history of them. Record of the previous treatment, which had included cauterization, was not obtainable.

In conclusion, I wish to acknowledge my obligation to Professor Simpson for his cordial coöperation in furnishing the material for examination.

METHOD OF CLEANSING BLOOD PIPETTES.

ALBERT ROBIN, M.D.
WILMINGTON, DEL.

I have used for years the following simple method for cleaning blood pipettes. The suction end of an ordinary air-pump (Chapman's), with a coupling for a smooth faucet is connected with a filter flask. Through the rubber stopper of the latter is inserted a bent glass tube, which is connected with the rubber tube of the blood



Apparatus for cleansing the blood pipette.

pipette. The end of the pipette is immersed in a bearer containing distilled water and the pump started. When the pipette is thoroughly washed, alcohol, ether and air are allowed, in turn, to pass through the pipette. The entire operation requires but slight attention and no effort whatever.

1223 Market Street.

Man With Two Fathers.—French historians mention that the bishop of Lucon, Jacquemet-Gauthier, was officially recognized in 1773, as having two fathers. His mother, three months after the death of her first husband, Jacquemet, married Gauthier, and seven months after this second marriage the child was born. On the advice of the medical faculties of Paris and Montpellier, parliament officially recognized him as the son of the two husbands, conferring the name of each on him and entitling him to inherit from each. (*Gaz. Méd. Belge*, xix, No. 17.)

New and Non-Official Remedies

THE FOLLOWING ARTICLES HAVE BEEN TENTATIVELY ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR INCLUSION IN THE PROPOSED ANNUAL, "NEW AND NON-OFFICIAL REMEDIES." THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT, BUT TO SOME EXTENT ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE FINAL ACCEPTANCE AND PUBLICATION IN BOOK FORM.

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT SO FAR AS KNOWN IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

(*Continued from page 523.*)

(A list of all accepted articles is published on one of the advertising pages of The Journal in the first issue of each month.)

NOVARGAN.

SILVER PROTEINATE.

Novargan is an organic silver-albumin compound containing 10 per cent. of silver.

It is a fine yellow powder, soluble in water, forming a practically neutral solution, from which it is not precipitated by sodium chloride, nor affected by the usual reagents for silver salts. Solutions must not be heated and must be protected from the light.

The solution is darkened by hydrogen sulphide or ammonium sulphide, but no precipitate is produced.

Actions and Uses.—Novargan is a bactericide; it is claimed to be more effective and less irritating than other protein-silver compounds.

It is said to be useful for the treatment of gonorrhea, especially as an abortive in the first stage.

Dosage.—0.5 Cc. (8 minims) of a 15 per cent. solution, by instillation on the anterior surface of the urethra, through a catheter (23 Cm. (9 in.) long, No. 13 French scale) as an abortive.

Manufactured by The Heyden Chemical Works, Radebeul, Germany, and Garfield, N. J. U. S. trademark.

ORGANIC IRON PREPARATIONS.

"MASKED" OR "NON-IONIC" IRON.

The term "organic iron" is confined by modern usage to those organic compounds of iron which do not give the chemical tests of this metal (blue color with potassium ferrocyanide, blue-black color with hematoxylin, etc.) until the structure of the molecule has been destroyed by reagents. The resistance to this destruction varies greatly; some (such as hemoglobin) require incineration or the action of concentrated acids; while others give the iron-tests after treatment with even fairly dilute acids. The organic iron compounds occurring naturally in animal and vegetable tissues (which are often termed "food-irons") belong generally to the more resistant class, while the iron of the synthetic preparations is usually liberated fairly readily. This does not, however, constitute a sharp line of distinction between the two classes, nor is there any good evidence that they differ in therapeutic action. Until this difference is established all organic iron preparations, whatever their source, may be placed in a single class. It is evident, however, that an organic iron (chemically) which is destroyed by 0.2 per cent. hydrochloric acid at the body temperature, can not be classed as an organic iron in the therapeutic sense. It should also be emphasized that salts of iron (which give the iron tests directly) are classed as inorganic iron, whatever the acid radicle. True albuminates, peptonates, etc., of iron are, therefore, inorganic.

Actions and Uses.—Organic iron preparations are used to increase the hemoglobin in conditions of anemia. Bunge supposed that only organic iron could be absorbed and assimilated by the body, the reputed action of inorganic iron being altogether indirect, and due to its local effects on the alimentary canal. This theory was modified by Abderhalden, to the effect that inorganic iron, while it could not be converted into hemoglobin, nevertheless stimulated the assimilation and conversion of organic iron. The latest work, however (Tartakowski) seems to prove conclusively that inorganic iron is assimilated and converted into hemoglobin, and is in so far therapeutically, fully equal to organic iron. Many authors, however, still adhere to the theories of Bunge and Abderhalden. At all events, a real difference exists between the organic and most of the inorganic preparations, namely, in the local irritant and astringent action of the latter, and the absence of these effects in the organic compounds. These actions may be desirable in some cases, and undesirable in others. It should also be remembered that organic iron may often be administered in sufficient amount, and most economically, by selecting a dietary rich in iron, such as red meats, egg-yolks, green vegetables, whole wheat, etc.

PROTARGOL.

PROTEIN SILVER SALT.

Protargol is a compound of albumin and silver, containing 8.3 per cent. of silver in organic combination.

According to the patent specification insoluble protein silver compounds, obtained by treating protein bodies with silver salt, are rendered soluble by treatment with a solution of albumoses.

It is an impalpable, yellow powder, soluble in twice its weight of cold water, producing a solution which is not affected by the ordinary precipitants of silver salts, such as alkalies, sulphides, chlorides, bromides, iodides, nor by heat.

Ammonium sulphide gives a dark color to the solution without precipitation. Addition of strong hydrochloric acid produces a precipitate of unchanged protargol, soluble in a large quantity of water. A solution containing sulphuric acid is not colored blue by diphenylamine. It is compatible with picric acid and picrates and with most metallic salts. It should not be exposed to light. It is precipitated by cocaine hydrochloride, but this is prevented by addition of boric acid.

Actions and Uses.—Protargol is a non-irritant bactericide and antiseptic. It is being recommended in acute and chronic gonorrhea as a non-irritant substitute for silver nitrate and in diseases of the mucous membranes of the eye, ear, nose and throat, particularly for the treatment of conjunctivitis.

Dosage.—From 0.25 or 1 per cent. solutions in acute gonorrhea, to 5 or 10 per cent. instillations in chronic cases, in cystitis and urethritis; in solutions of 1:1000 to 1:200 as irrigations. Used also in form of bougies and tampons (5 to 10 per cent.). Its solutions in water are made by pouring on the protargol a little *cold* water, stirring into a thick paste, and gradually adding the remainder of the water under stirring; or by sprinkling the protargol on the surface of the whole of the water (cold) and setting it aside until solution occurs.

Manufactured by Farbenfabriken, vorm. Friedr. Bayer & Co., Elberfeld, Germany (Continental Color & Chemical Co., New York). U. S. patent No. 615,970. U. S. trademark No. 30,882.

(*To be continued.*)

Naming of Carbon Compounds.—Ene: the suffix en or ene generally indicates the unsaturated group C:C, thus CH_2:CH_2, is ethene (eth-ene). Exceptions: terpene, naphthalene, anthracene, etc. Enol: The suffix enol (en + ol) indicates an unsaturated alcohol, thus CH_2:CHOH is ethenol.—*Pharm. Rev.*, August, 1906.

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SATURDAY, FEBRUARY 16, 1907.

SCARLET FEVER AND MILK.

There can be no question that scarlet fever is commonly spread by what is more or less loosely denominated "contact," a term applied to fairly close proximity to persons suffering from the infection, or to clothing and other articles handled by or brought into the neighborhood of the patient or convalescent. Other modes of dissemination, however, must not be overlooked. It has been asserted by the daily press of Chicago that the recent extension of scarlet fever in that city has been due, in part at least, to infected milk, especially in the suburb of Evanston, where it is claimed that a fairly direct connection has been shown between the use of milk distributed by a particular company and the appearance of cases of scarlet fever. We have not ourselves made any investigation of this epidemic, and so far as known an official public report has not yet been published. Since the possibility that scarlet fever can be conveyed by milk has been called in question in some quarters, however, it seems worth while to consider briefly what the evidence really is that scarlet fever can be transmitted in this way.

Even a partial survey of the literature on this subject shows that sanitary authorities are unanimous in attributing certain outbreaks of scarlet fever to milk infection. Swithinbank and Newman, in their comprehensive treatise on the "Bacteriology of Milk," have tabulated, with references and abstracts, some 40 different epidemics of scarlet fever comprising over 3,400 cases that have been traced by competent investigators to the use of milk from infected dairies. A typical instance or two may be cited. In one outbreak occurring in Upper Clapton, England, in 1892, 178 cases of scarlet fever appeared suddenly in a localized area among houses of good class supplied by a particular milkman. Most cases occurred where most milk was consumed, and the houses supplied by the particular milkman had twelve times as many cases as all of the other households supplied by all the other milkmen in this district. It was found that a child in the family of one of the men engaged in handling the milk had suffered with scarlet fever, and the outbreak was not unreasonably attributed to infection of the milk from this source.

Another important instance of milk infection was investigated under the auspices of the Massachusetts State Board of Health.[1] This outbreak occurred in the cities of Beverly and Salem and on a neighboring island—Baker's Island. In Beverly, out of twenty-one patients with scarlet fever, nineteen used milk supplied by one dealer. Every one of the twelve patients on Baker's Island had used milk supplied by this milkman, while others on the island who had obtained milk from other sources had not been taken ill. On the first suspicion that the milk supply was the probable source of infection, the Boards of Health of Beverly and Salem ordered the dealer to discontinue distributing milk in these cities. This occurred on July 8; and, allowing for patients already infected to become ill with the disease, only five additional cases developed after the infection had been stopped, although in the first half of the month there were fifty-five cases, not including those on Baker's Island. On visiting the three farms from which the milk dealer obtained his supply it was found that on one of them three children had been sick during the preceding month with what was considered undoubtedly a mild form of scarlet fever. One of these children, a boy fourteen years of age, assisted in the handling of the milk. The sudden outbreak of this epidemic and the equally sudden cessation, after the source had been determined and the distribution of the milk discontinued, are especially significant.

It is by a detailed study of epidemics of this character that health authorities have become convinced that it is possible for milk to serve as a vehicle of infection in scarlet fever. Objection has been made that, since the germ of scarlet fever is not known, the mode of spread of the disease is also conjectural. This position is quite untenable. We know that hydrophobia can be communicated by the bite of a rabid dog, although the germ of hydrophobia is still unknown. No one can believe that our knowledge of the mode of spread of smallpox would be materially more complete than it is if the parasite of the disease were known to us. The fact that typhoid fever can be spread by infected milk is universally recognized, and the evidence in case of scarlet fever is of exactly the same character and is quite as conclusive. As a matter of fact, the typhoid bacillus has never been found in milk suspected of having caused an outbreak of typhoid fever, and from the standpoint of scientific evidence the finding of either typhoid bacilli or scarlet fever germs in milk would not in any wise strengthen the case for milk infection. It may be pointed out that long before the germs of Asiatic cholera or typhoid fever were discovered the evidence that these infections were commonly water-borne was overwhelming and was accepted by all clear-thinking investigators. While it seems clear that scarlet fever is less commonly spread by milk than is typhoid, there is no doubt that the danger exists and should be guarded against. If a particular epidemic is proved to have some other source, this does not invalidate the general proposition.

1. Report of Mass. State Board of Health, 1901, p. 561.

EXPERIMENTAL SYPHILIS.

Although it was claimed by Klebs as long ago as 1879 that syphilis could be artificially produced in apes, the subject did not receive much attention till a few years ago, when Metchnikoff and Roux took up the work afresh at the Pasteur Institute. The success of these investigators led to further research, in which a prominent part has been taken by Neisser of Breslau and Finger of Vienna.

The researches of Metchnikoff and Roux were carried out on the higher anthropoid apes, the chimpanzee especially being used. It was shown that syphilis could be inoculated into these animals with the production of a primary lesion, after a period of incubation, followed later by secondary manifestations. Metchnikoff and Roux laid stress on the fact that anthropoid apes were necessary, but later experiment has shown that some varieties whose relationship to man, as shown by the precipitin test, is remote, may contract syphilis. In the more remote species of ape, however, the disease is not so typical, the incubation period is usually shorter, and the secondary manifestations are abortive or even lacking, according to the nearness in blood relationship to man.

The revival of the experimental work on apes has led to a similar revival on rabbits. It is not generally known that in 1881 Haensell claimed that he was able to produce inoculation syphilis of the iris and cornea in rabbits. In one animal he even described gummata in the liver. Schucht,[1] working with Neisser, has repeated these experiments, and has been able to confirm them. Using an emulsion of inguinal glands from fresh cases of lues, which he inoculated into the anterior chamber of the vitreous, he was able to produce in some instances a parenchymatous keratitis, in others a lesion which resembled a gummatous iritis. The lesion appeared only after a long period of incubation, was not at all comparable to an ordinary infectious eye process, and was always accompanied by the *Spirochæta pallida* in large numbers. In no animal did Schucht find evidences of generalization of the process, none showed lesions of the internal organs, and in none did an examination of the blood serum show evidences of the disease.

It is evident from these researches that syphilis is more or less transmissible to the lower animals, and that, although the best chances of success are gained by using animals closely allied to man, some remote from him in blood are also susceptible. This experimental work has thrown some light on aspects of the problem of syphilis which were, at best, poorly illuminated by clinical experience. It has been shown many times in the experiments on monkeys that the organism of syphilis belongs to those which must enter the body in a particular way, in this instance through an abrasion. If the virus be introduced into the blood, into the peritoneal cavity, or subcutaneously it fails not only to produce the disease, but also to produce any protection against a later inoculation of the surface. The period of incubation of the disease, as shown by the experiments, corresponds very closely, both in monkeys and in rabbits, to that which clinical experience had laid down as the period in man. In rabbits the average period of incubation is about twenty-nine days; in apes the average is a little lower, and, as a rule, the disease seems least virulent in them when the incubation is short. The question of the infectiveness of the blood has also been cleared up to some extent, and it has been shown that even six months after the onset of the disease it still contains the causal parasite.

The infectiousness of the tertiary lesions has been proved both by Finger and Landsteiner and by Neisser, though it is not claimed that all tertiary lesions are equally infective, and many of the experiments were failures. The infection of the spermatic fluid has likewise been demonstrated, though here, again, the percentage of cases in which such infectiveness could be shown was small. In many ways the work has led to valuable discoveries, and more will probably follow.

1. Münch. med. Wochschr., Jan. 15, 1907.

HOSPITAL AND DISPENSARY ABUSE.

It is strange that the hospitals and dispensaries of this country should be so shamelessly flooded with pseudo-charity patients, having no claim whatever to gratuitous service. It can be explained only on two hypotheses: First, the working of that innate trait of human nature which prompts to obtain something for nothing, and, second, the lack of good business discrimination on the part of the institutions whose benefits are thus abused.

From the point of view of the profession the abuse is a serious one. Many a struggling young city physician is deprived of the opportunity of earning a living because patients, who are amply able to pay ordinary fees, stultify themselves by accepting hospital alms. The value, too, of medical service, in the eyes of the laity, is much depreciated; as, indeed, is always the case when things can be obtained without effort or sacrifice. The individual who, at a dispensary, has received careful treatment at the hands of one of the leading specialists of the city at no greater outlay than the time and trouble he took to present himself at the clinic, will hesitate a long time before paying from one to five dollars for the same service at the hands of one of the rank and file of the profession.

But from a humanitarian standpoint, one important reason why this abuse should be remedied is that the worthy poor, the class for which such institutions are supposed to exist, are deprived of the opportunity of using them. Every year hundreds of the sick and needy, in the large centers of population, are unable to get free medical service from the hospitals and dispensaries because these institutions are already overcrowded and worked beyond their capacity. This, of necessity, in-

creases the gratuitous work of which the general practitioner, under the most favorable circumstances, has so much to do. And all this because well-to-do individuals, who would be righteously indignant if accused of stealing, are filching from the needy the attention and service which state and individual enterprise have provided.

To such an extent has this abuse spread that in some places active measures have been taken to check it. In Europe, where the hospitals are so largely supported by voluntary contributions, the abuse has become a menace to their continued existence. Only recently in London an important conference was held to consider ways and means of checking the evil, while the Vienna hospitals now demand a "testimonial of poverty," signed either by the landlord of the tenement in which the applicant lives or by specially appointed guardians of the poor. In this country some of the medical societies have passed resolutions decrying the abuse, but so far as we know no active measures have been taken to check it.

MRS. MARY BAKER EDDY'S CASE OF HYSTERIA.

No one more than the writer of the serial articles on the Christian Science cult appearing in the current numbers of *McClure's Magazine* is likely to approach the life history of Mary Baker Eddy with the same regard for accuracy, the same respect for truth, and to bring to the laborious task the same indefatigable energy so necessary for an enduring type of biographic research. Indeed, as a contribution to our knowledge of the woman and her creed, it is so singularly free from invective and irreverence as to compel admiration and challenge inquiry. Discrediting all that has been said or written of "Mother" Eddy by penny-liners and pamphleteers and submitting as evidence only the testimony set forth in *McClure's,* how much appears there in support of the fact, not the theory, that Mrs. Eddy always has been, is, and always will be, the pitiable victim of the grand neurosis, better called grand psychosis—hysteria?

Mrs. Eddy, it can not be denied, is a religious type; Mrs. Eddy, it will not be denied by those qualified to say, is a pathologic type and, if you please, a clinical entity. How shall she be classified? Relieved of the glamor of deification, stripped of her self-endowed sanctity, the founder of the Christian Science church has her counterpart in many of the types of psycho-neurotics and hysterics studied and grouped by Charcot, Briquet, Guinon, Colin, Freud, Moebius, Janet and Mitchell.

The rôle of heredity is manifest in Mrs. Eddy's family history, although its pathologic proportion, so far as we are privileged to know, is not great. On the paternal side, the high temper of the father rose to uncontrolled acts of destructiveness. The mother, we are told, was an ardent reader of the Bible and believer in miracles. Whether the "ghostly visitations" which came to the daughter Mary at the tender age of eight years are to be interpreted as hysterical hallucinations of an auditory or visual type, it is, in the spirit of fairness, difficult to say. The Shaker cult and the pervasive influence of its religious mysticism on the community for miles around the Baker home, together with early and intensely religious training, would tend to make the youth of that period impressionable and visionary. It should also be remembered that the Samuel-like experience of "being called" is not without a parallel in the life of that other sanctified personage, Ann Lee, "Mother Ann" of Shaker fame. In the abstract, all autosuggestion of this order must be construed as hysterical, but, as a sign of the times, it is robbed of some of its prestige in Mrs. Eddy's own case.

Following the recital of many and diverse spiritual events, her biographer points out the chronic state of her physical ills, and one is impressed with Mrs. Eddy's easy transition from psychologic to pathologic premises. The leniently disposed of her friends called the girl Mary "different" from the rest of the family. Others, more critical, referred to her "tantrums" and the ever amiable, yet outspoken, Dr. Ladd unhesitatingly pronounced her case as one of "hysteria mingled with bad temper." From her girlhood days, until "the patient" attained the age of 40, hysteric episodes, fits, seizures, trance-states, and nervous invalidism abound. To the precocity of Mary Baker's childhood, the brooding and spiritual unrest of her adolescence, it is pertinent to add the disastrous effect of two disappointing marriages, which, together with other overwhelming domestic infelicities, established a deep-rooted neural instability, fraught with obsessions, phobias, imperative ideas, catalepsies and well-poised megalomania.

From a neurologic viewpoint, no great power of discernment is necessary to see, in Mrs. Eddy's early abandonment of her son, an act betokening profound psychic anesthesia, which condition is not at all uncommon in the mental state of hysterics. And all the apologies sung by her in poetry or prose will not suffice to explain away this act except as a phenomenon of a morbid mind. Adhering still more closely to an analysis of the mental state, what psychologist will fail to take cognizance of Mrs. Eddy's irrepressible, colossal egoism, by virtue of which she calmly appropriated all of her benefactor Quimby's "Art of Mind-Healing" and erected his doctrines into a creed which utterly offends through its immature logic and immodest use of I's? "*I* called it *Christian* because it is compassionate, helpful and spiritual. God *I* called *Immortal Mind.* The physical senses, or sensuous nature, *I* called *error* and *shadow.* Soul *I* denominated *substance* because soul alone is truly substantial. God *I* characterized as individual entity, but his corporeality *I* denied. The real *I* claimed as eternal, and its antipodes, or the temporal, *I* described as unreal. Spirit *I* called the *reality* and matter the unreality." Just where the morbidly conscious "ego" retires, to let rank plagiarism sit in its place, may be seen in Mrs. Eddy's successful effort at emulating Shakerism.

Mother Lee is the God-anointed woman; Mother Eddy, the woman God crowned; Mother Lee's Church is the Church of Christ; Mother Eddy's Church, the Church of Christ, Scientist. (Note further parallelisms in *McClure's* of February.) All of this and much more is so expressive of the hysteric "ego" as to merit prominence in any estimate of Mrs. Eddy's psychopathic state.

The history of an initial injury to the back from a fall on the sidewalk, the subsequent avowal of an incurable spinal trouble, the years of total disability in the legs, the vague and experimental treatment with its failures, the appeal to Quimby in such phraseology as "and only you can save me"—the arrival at Quimby's "without sinking from the effects of the journey"—the cure so suddenly wrought that, "in less than one week, I climbed 182 steps to the Dome of the Portland City Hall, and in three weeks a spinal trouble of years' duration entirely disappeared"—what else is all this but the familiar picture of a classic hysterical paraplegia?

Therefore, be it said in justice to the founder of this twentieth century cult that, from a specialistic viewpoint, Mrs. Eddy is the victim of a mental malady, in which hereditary influence, provocative agents, motor accidents, physical and moral shocks, painful emotions and mental disintegration are so strangely mixed and yet so obviously present that the diagnosis of hysteria is at once easy and convincing.

ALCOHOL IN THE NAVY.

The article of Dr. Lovering in this issue raises certain questions which are worthy of serious consideration. If, after forty years of prohibition, the disability from alcoholism in our Navy is seven or eight times greater than in the British and German navies, it might not seem so illogical to advocate the reintroduction of the grog ration or, at least, and probably much better, the beer-selling canteen. When, however, as Lovering says, the sentiment in favor of temperance is weak, the officers discourage it by their example and by neglecting to discriminate in matters of promotion and privileges between the man who has proved himself untrustworthy by disabling habits of alcoholism and the temperate man, there would seem to be possibly another remedy to be first tried. If officers themselves are not temperate examples, we have in this alone a serious handicap to any temperance regulations for those below them. Objections might easily be made to giving up the use of wines and liquors on account of the alleged necessity for entertaining in foreign ports, etc., but if the absence of liquor was a government regulation the officers themselves could not be blamed and the parties higher up could stand it. It would probably have as a compensation a considerable economy in the mess bills, and it is going a long way to urge that there is any necessity on their own account for even moderate drinking by naval officers. How many disasters and how much money lost are due to drinking habits of American naval officers no one could positively say, but that there have been such disasters and losses in navies no one can deny, and there is an ever-present possibility of such in the existing state of affairs. In former times the idea was that the fighting men in the navies did better for stimulation, and the serving of grog was a regular preliminary to an engagement. At the present day "the man behind the gun" needs all his nervous power at its best. He works with instruments of precision at long range, instead of the old fashion of yard-arm-to-yard-arm gunnery methods, in which the reckless valor induced by alcoholic stimulation seemed to short-sighted officers to be an advantage.

GASTROSTAXIS.

Hematemesis may be the result of a variety of conditions, the most common of which is gastric ulcer. In a certain number of cases of profuse hemorrhage from the stomach no lesion is discoverable at operation or at autopsy. By some this form of bleeding has been supposed to be vicarious, at times taking the place of menstruation or of hemorrhoidal discharge. In the opinion of Dr. W. Hale White,[1] who discusses the entire question at considerable length, the hemorrhage under the circumstances mentioned is due to the oozing of blood from the mucous membrane of the stomach or duodenum. He has adopted the term gastrostaxis as descriptive of the disorder, in analogy with epistaxis. White has succeeded in collecting twenty-two cases of the kind from the literature, including two of his own, and to these he adds reports of seven previously unpublished cases. Only such cases are included as exhibited after death or on inspection of the interior of the stomach during life an absence of ulceration or of other recognizable cause for hemorrhage. Twenty-seven of the patients were women and only two men. The vast majority of the cases—twenty-three—were observed between the ages of 21 and 39 years—twelve between 21 and 29 and eleven between 30 and 39. The youngest patient was 18, the oldest 54. The essential symptom of the disorder is the hematemesis, but in addition there are vomiting and pain in the epigastrium. The bleeding varies within wide limits, at times being rather profuse. It may be repeated frequently over a long period of time. No cause for the disorder has yet been discovered. The affection is uncommon, having been observed but three times among 7,500 autopsies at Guy's Hospital out of a total of 32,000 cases. Recovery appears to be the almost invariable outcome. The condition can, as a rule, be readily differentiated from other forms of gastric hemorrhage with the exception of gastric ulcer. In the last-named disorder, however, the vomiting is likely to be greater and the remaining symptoms more pronounced and more unyielding or more persistent. In the way of treatment the patient should be kept quiet in bed for some time after the bleeding has ceased. He may be permitted to suck bits of ice, but for a time he should have no food. From five to ten minims of a solution of adrenalin hydrochlorid, 1 to 1,000, may be given by the mouth; also a solution of ferric chlorid, half a dram, with an equal amount of glycerin; and twenty grains of cal-

1. Lancet, Nov. 3, 1906, p. 1189.

cium chlorid may be given thrice daily. Surgical intervention is definitely contraindicated. Three or four days after the bleeding has ceased milk may be given in rather generous amounts, and the diet thereafter may be gradually and progressively increased.

ANOTHER MEDICOLEGAL POINT SETTLED.

An English physician was recently sued by a patient for a betrayal of professional confidence. The remarkable thing about the case was that the confidential information was not communicated to a third person, but to the physician himself. It appeared that the physician's chauffeur was taken ill and entered an infirmary, in which place he came under his employer's care. Examination revealed the fact that the man was suffering from aortic disease and was evidently unfit to have charge of an automobile. On the chauffeur's recovery (the physician having meantime betrayed the professional secret to his business self), he received two weeks' advance salary and was discharged. Thus arose the question whether the employer, coming into possession of confidential information in his professional capacity, might use that knowledge to determine his actions in a business capacity to the detriment of the employé. All right-minded men must admit that it was a shameful abuse of a privileged communication. There was but one course open to the employer as a physician. That was to continue to ride behind the chauffeur, keeping inviolate his professional secret, until the aortic lesion resulted in a broken neck for the medical man, at which time he might with perfect propriety discharge his employé for evident incapacity. The court, however, persisted in looking at the matter from a purely common-sense standpoint and refused to grant a judgment in favor of the victim of misplaced confidence.

ANTHROPOID APES AND EXPERIMENTAL MEDICINE.

Darwin has often been misquoted as stating that the human race sprung from the monkey tribe, when what he really said was that man and the monkeys probably came from a common ape-like ancestor. The work of the past five or six years with the precipitin test, and more especially the investigations of Nuttall, have in part substantiated Darwin's views, showing a close blood relationship between man and the higher apes. As showing the value which an apparently abstract piece of knowledge may have when applied to practical uses, the effect of this discovery on the investigation of infectious diseases may be cited. It is, of course, well known that a few years ago there were, and are still, a number of diseases which we regarded as undoubtedly infectious, in which absolute proof of their infectivity was lacking because the lower animals were not susceptible to infection with the supposed causal agent. This was true of syphilis, of typhoid fever, of leprosy, and of yellow fever. The successful transmission of syphilis to apes is now well known, but it is probably not such common knowledge that typhoid fever and leprosy have also been reproduced in apes. Recently Thomas[1] has repeated the classical experiments of Reed and his confrères on yellow fever, using the chimpanzee for the subject of the experiment. He has been able to produce in this animal a typical attack of mild yellow fever with bile in the urine, albuminuria, and the usual febrile course. Doubtless other infectious diseases will be attacked along these lines in the near future.

1. British Med. Jour., Jan. 19, 1907.

Medical News

ILLINOIS.

Communicable Diseases—Smallpox is reported from Bradford and Osceola township, Stark County.——The State Training School for Girls, Geneva, is reported to have 13 cases of scarlet fever.——For the second time this winter the public schools of Humboldt have been closed on account of scarlet fever.

Personal.—Dr. Elmer M. Eckard, health commissioner of Peoria, has recovered after a long illness.——Dr. Henry Richings, Rockford, is seriously ill with inflammatory rheumatism.——Dr. Joseph De Silva has been appointed president, and Dr. J. W. Stewart, vice-president, of the Rock Island County Humane Society.——Dr. William C. Spannagel, East St. Louis, has been appointed deputy coroner, vice Dr. Henry G. Hertel, who left for San Antonio, Tex., February 1.——Dr. and Mrs. Noel R. Gordon, Springfield, have gone to San Antonio, Tex., for a month.

State Health Board Issues Circulars.—During the last few weeks the State Board of Health has issued three circulars, which are just now of more than ordinary import, on the prevention, restriction and suppression of scarlet fever, diphtheria and typhoid fever. Thousands of copies of these circulars are being sent to infected municipalities. In the circulars have been incorporated the most recent facts regarding practical disinfection. The method of formaldehyd-potassium-permanganate disinfection is described in detail. The board has in preparation revised circulars on infant feeding and tuberculosis. The combined edition of these circulars will amount to more than 150,000 copies.

Chicago.

Personal.—Dr. Charles S. Bacon sailed for a two months' visit to Europe, February 13.——Dr. Jacob Frank has returned from a trip to the West Indies.

Endow Bed in Hospital.—The Policlinic Nurses' Alumni Association held its first annual reception and ball February 7. The proceeds, which amounted to about $500, were devoted to the endowment of a bed in the new Henrotin Memorial Hospital now being erected at Oak Street and La Salle Avenue.

Epidemic Diseases.—The number of cases of scarlet fever and diphtheria have markedly decreased. On February 10, 43 cases of scarlet fever and 23 cases of diphtheria were reported, and on February 11, 32 cases of scarlet fever and 20 cases of diphtheria. The health department warns the public that an epidemic of influenza is impending.

Guthrie Bowlder Must be Removed.—Judge McEwen, on February 7, gave a decision regarding the bowlder placed in Lake Front Park in memory of the late Dr. Samuel Guthrie, in which he denied the writ of injunction by which the Chicago Medical Society sought to restrain the park commissioners from interfering with the bowlder.

Anatomy Museum Proprietor Arrested.—Dr. J. W. H. Camp was arrested January 31, on the charge of obtaining money under false pretenses, made by a 16-year-old boy, who stated that he went into the museum of anatomy of the accused, and was there told that he was suffering from an incurable disease and would die in three days unless he took treatment. In his alarm the boy gave the proprietor $125, but soon found that he had been deceived. On February 6 Dr. Camp is reported to have been fined $200 and costs and ordered to return $100 of the money said to have been obtained under false pretenses.

Mortality of Week.—During the week ended February 7, 783 deaths were reported, equivalent to an annual mortality of 19.38 per 1,000, an increase of 42 over the previous week, and of 217 over the corresponding week of 1906. The chief death causes were: Pneumonia, 153; consumption, 70; heart disease, 56; nephritis, 52; scarlet fever, 44; violence (including suicide), 36; nervous diseases, 30; bronchitis and acute intestinal diseases, each 28. Diphtheria caused 15 deaths; measles, 11; typhoid fever and whooping-cough, each 9, and influenza, 8.

Cocain Shop Closed.—A drug store which has been most noted for its illegal sale of cocain, and against which the crusade has been especially directed, has been closed by its proprietor, who says he will not reopen it.——Dr. Alfred Dahlberg, convicted of selling cocain, who disappeared from Chicago and whose bond was ordered forfeited, returned to the city February 11 and, in default of bail, was committed to the county jail.

Instructions to Medical Inspectors.—The department of health has issued rules for medical inspectors of schools which state that medical inspectors should familiarize themselves with the city health ordinances; that inspectors should be governed by the Principles of Medical Ethics of the American Medical Association; that inspectors should call daily at the schools assigned to them and request the principals to furnish the names and addresses of all pupils absent from school without known cause for four consecutive days; that principals should not let such an absentee re-enter school without a certificate from the medical inspectors; that inspectors should go to the homes and determine if pupils can safely return to school; that pupils suspected to be suffering from infectious diseases should be reported by the principal to the inspector. The circular gives in detail the duties of the inspector in cases of various communicable diseases. Inspectors are forbidden to make suggestions as to treatment or management of pupils who are ill.

INDIANA.

Banquet to Staff.—In accordance with their annual custom, the Sisters of St. Francis, Lafayette, served a banquet in honor of the staff of St. Elizabeth's Hospital, January 15. Covers were laid for 46 guests.

Unlicensed Physician Fined.—O. C. Brown, Martinsville, is reported to have been fined $25 and costs, January 16, on the charge of practicing medicine without a license. He appealed to the Circuit Court. The prosecutor was assisted by Attorney Gavin, representing the state medical board.

INDIAN TERRITORY.

Medical Society Meets.—The Medical Society of the Fifth Recording District met recently at Pryor Creek, three new members being admitted: Dr. J. H. Todd, Kansas; Dr. J. E. Bristow and Dr. F. M. Jones, each of Pryor Creek. The society's name was changed to the Mayes County Medical Society. At this meeting a paper was read by Dr. U. T. Tilly of Pryor Creek on "Pelvic Inflammation." Dr. Tilly, who is president of the Northern District Medical Society, called attention to the great responsibility resting on the general practitioner in correctly diagnosing and treating this condition. He deprecated both the excessive local treatment given by some and the insufficent examinations made by others. He considered prophylaxis of the greatest importance. A patient requiring surgical treatment, he believed, should not be treated expectantly, as no cases of true ovaritis can be cured by hot-water douches or tampons. Dr. Tilly's paper was freely discussed and aroused much interest.

MARYLAND.

Unregistered Physicians Fined.—"Dr." Oscar W. Baysan, an "herb doctor" of Talbot County, was fined $50 and costs February 4 for practicing medicine without first having been registered.——On the same day John A. Watson is said to have been fined $200 on the same charge. He is said to be the head of a private sanitarium at Frostburg. It is reported that he will appeal on the ground that the law is unconstitutional.

Laxness in Insane Commitments.—Dr. George J. Preston, secretary of the State Lunacy Commission, in his report points to the laxness with which the insane are committed to asylums in the state. It is possible to commit an individual without further inquiry, simply on a certificate signed by two physicians. Thus, if relatives wish to put a person away, great injustice might be done, especially with connivance on the part of officials of the institution. While Dr. Preston believes that this never has happened, he thinks it should be made legally impossible. He believes that the present law deprives a man of his liberty without opportunity to protest. He suggests that the papers should be signed by the judge of a court of record, before whom the alleged insane person and his friends should also have the right to appear with witnesses and counsel. Publicity need not be necessary for the proceedings, as the judge could sign papers in chambers.

Baltimore.

Accidents and Suicides.—During January, 11 suicides were reported in the city and in addition 12 unsuccessful attempts. There were also 34 fatal accidents and 236 minor accidents reported.

Dispensary Report for 1906.—The Northeastern Dispensary reports 18,953 patients treated during the year, 1,041 being visited at their homes; 1,491 operations were performed. Dr. Arthur Wegefarth was elected president, and Dr. A. D. McConachie, secretary.

Personal.—Dr. Clarence B. Farrar, of the Shepard and Pratt Hospital is giving a course of six lectures on physiological psychology in connection with the Psychologic Department of Johns Hopkins University.——Dr. Thomas L. Sheaver, known as the "hatless" man, has introduced the custom of going about without a hat.

Acquitted.—Dr. Daniel W. Smith, who was tried in the Criminal Court February 1 on the charge of failure to report to the health officer a case of typhoid fever which he was treating during the epidemic last spring, was acquitted, as he stated that he reported the case as soon as he was satisfied that it was typhoid fever.

NEW YORK.

New Building for Children's Hospital.—Through the generosity of Mrs. Charles W. Pardee the Children's Hospital, Buffalo, is to have a new fire-proof building, to cost about $100,000.

Staff Elected.—At a meeting of the Samaritan Hospital staff Troy, Dr. William L. Hogeboom was elected chairman; Dr. Herman C. Gordinier secretary and Dr. Thurman A. Hull, radiographer.

Report of State Hospital.—The sixth annual report of the State Hospital for the Cure of Crippled and Deformed Children at Treason Hill, near Haverstraw, for the year ended September, 1906, shows that on October 1 there were 45 patients receiving treatment in the hospital. During the year 24 new patients were received, making a total of 69 patients treated.

Long Island Physicians Meet.—At the ninth annual meeting of the Associated Physicians of Long Island, held January 19 in Brooklyn, Dr. Arthur H. Terry, Patenogue, was elected president; Drs. Frank Overton, Patchogue, H. Beckman, Delatour, Brooklyn and George K. Meynen, Jamaica, vice-presidents; Dr. James C. Hancock, Brooklyn, secretary (re-elected); and Dr. Charles B. Bacon, Brooklyn, treasurer (re-elected).

Coroner's Report.—During 1906, 5,890 deaths were reported to the coroner's office of New York County, of which 2,160 were due to violence. There were 549 felonious assaults causing death. Surface cars caused 97 deaths, elevated trains 14, tunnel trains 17 and automobiles 24. The suicides of the year numbered 398, of which 110 were due to gunshot wounds, 21 to incised wounds of the throat, 51 to poison, 124 to gas asphyxiation, 27 to strangulation, 27 to jumping from windows or roofs, 4 to jumping in front of trains, and 34 to drowning. The total number of deaths from accidents was 684. Alcoholism caused 115 deaths.

Insanity on the Increase.—The eighteenth annual report of the state commission on lunacy indicates a steady increase in insanity in the state. The net increase in all institutions during the past year was 839. The whole number of new cases during the year was 5,761, slightly more than during the preceding year. The total number of insane in all institutions at the close of the year was 28,302, of whom 960 were classed as criminals, and during the year 1,468 were discharged as cured. The commission makes a plea for nurses' homes on the grounds of the hospitals at Middletown, Binghamton and Poughkeepsie. An appropriation is asked for a site for a new hospital to replace that one on Ward's Island as the state's lease expires in six years. Alien insane deported to Europe during the year were 169 in number. The report favors the extension of the farm colonies in connection with existing hospitals.

Personal.—Dr. James W. Putnam, Lyons, has been designated local surgeon for the New York Central lines and Rochester, Syracuse & Eastern Railroad.——Drs. Henry D. White, Albert E. Dietrich, Samuel Millington, Howard J. Teller, Dwight C. Broga, Nelson C. Scudder and J. Orley Stranahan have been appointed ward physicians of Rome.——Dr. Charles E. Low, Pulaski, has retired from the practice of medicine to accept a position as heating and ventilating engineer and sanitary expert.——Dr. Allen T. Leonard has been appointed city physician and Dr. Frederick W. Bentley a member of the Board of Health of North Tonawanda.——Dr. James E. Walker, Hornell, sailed for Europe January 6.——Dr. James G. Hunt, Utica, has been reappointed local surgeon of the New York, Ontario and Western Railroad for the twenty-third

consecutive year.——Dr. John Van Duyn, Syracuse, has been elected a director of the Onondaga Historical Association.——Dr. William C. Doane, Elmira, has recovered after a severe illness.——Dr. John L. Bishop, Niagara Falls, has gone to New York City for treatment at the Pasteur Institute.——Dr. C. Floyd Burrows will succeed Dr. Henry B. Pratt as physician at the Syracuse City Hospital.——Dr. Charles Haase, Bath, will sail for Europe about April 1.——Dr. William W. Hewlett, Babylon, who was operated on for nephritis January 30, at the Presbyterian Hospital is reported to be in a critical condition.

San Francisco Relief Committee's Report.—The Relief Committee of the New York Academy of Medicine and the medical societies of the counties of New York and of Richmond was organized April 26, 1906 and elected Dr. Charles L. Dana chairman; Dr. John H. Huddleston, secretary and Dr. Charles H. Richardson treasurer. It issued appeals to the medical profession and was early aided by a gift of $5,000 from the New York Chamber of Commerce. Aside from this gift 440 individual subscribers contributed $5,661.10 and 14 societies $2,040. The societies which contributed were as follows: The Women's Medical Association of New York City, Quiz Medical Society, Metropolitan Medical Society, New York Society of Dermatology and Genitourinary Surgery, Harlem Medical Association, Medical Society of the County of New York, New York Academy of Medicine, German Medical Society of New York City, Eastern Medical Society of the City of New York, New York Society of Internal Medicine, Alumni Association of New York Hospital, Alumni Association of St. Luke's Hospital, Yonkers' Practitioners Society and Medical Union Society. The total disbursements were $226.52. The amount from medical sources sent to San Francisco was $7,474.58.

The Legislature.—Dr. Alvah H. Doty has again been appointed health officer of the port of New York by Governor Hughes. In making the appointment the governor issued a statement showing how efficiently Dr. Doty had discharged his duty and what valuable service he had rendered New York City and the entire country. Dr. Doty's appointment is for a term of four years.——Two anti-"patent-medicine" bills have been introduced into the legislature. One prohibits practicing physicians from prescribing "patent medicines;" the other requires "patent-medicine" manufacturers to file with the state commissioner of health a statement of the name under which the medicine is sold and a formula specifying the ingredients, and to print such formula on the labels of bottles.——At a hearing on the osteopathy bill on February 7, Dr. A. F. Bristol of Brooklyn, Dr. Arthur S. Root and Dr. H. L. K. Shaw of Albany, appeared before the senate and assembly committee on public health and explained why the state medical society opposed the bill.——Assemblyman Stern has introduced a bill compelling employers who conduct factories or shops in which machinery is used for manufacturing purposes to keep at all times medical and surgical chests for the use of employés.——A pure food bill has been introduced which is the most comprehensive of its kind yet proposed. It covers all food articles manufactured in the state. Delegates and representatives from all the pharmaceutical organizations and schools of the state met and discussed the subject of pure food legislation. It was decided to support vigorously the measure prohibiting the sale of cocain in any compound or form except on the prescription of a physician.——The assembly passed the G. H. Whitney bill prohibiting the sale of cocain and eucain, except on the prescription of a physician.

Buffalo.

Cold-Storage Food.—It has developed through correspondence carried on by Health Commissioner Wende with the health departments of other cities that no city has a cold-storage ordinance stating the length of time that food may be held in cold storage and be fit to be sold for food. The corporation counsel recently drafted an ordinance bearing on this most important question, but Dr. Wende has thus far withheld approving it until he has made a thorough investigation of the cold-storage business. He has appointed City Bacteriologist Bissell to proceed with the investigation. If true it is surprising, notwithstanding the immense amount of capital invested in cold-storage plants, and the large amount of foodstuffs, meat, poultry, eggs, etc., which are stored for varying lengths of time before their consumption, that no ordinances in any city are in effect governing the storage warehouses.

New York City.

Smallpox on Steamer.—The Fabre steamer, *Gallia*, which arrived January 26 from Mediterranean ports, was detained at quarantine because of a case of smallpox on board.

Ball for Benefit of Hospital.—The annual charity ball, which was given at the Waldorf-Astoria on February 4 for the benefit of the Nursery and Child's Hospital, realized several thousand dollars for the institutions.

More Medical Inspectors.—The health department has appointed 20 new medical inspectors of schools; 11 will be assigned to Brooklyn, 5 to Manhattan, 2 to the Bronx, and one each to Richmond and Queens.

Personal.—Dr. Henry C. Coe has been appointed consulting surgeon to the Woman's Hospital in the City of New York.——Dr. Julius Jarcho was seriously injured January 20 by being struck in the eye with a snowball. He is in grave danger of losing the sight of one eye.

Money for Beth Israel Hospital.—At a dinner given by the board of directors and the medical staff of this institution it was announced that $21,000 had been contributed toward the hospital by guests, and it is expected that the annual Purim ball will net at least $20,000.

Election.—The Brooklyn Medical Society has elected the following officers: President, Dr. Hugh Edward Rogers; vice-president, Dr. William H. Rankin; recording secretary, Dr. Alfred E. Shipley; corresponding secretary, Dr. Edward W. Wright; treasurer, Dr. Edwin A. Hatch, and librarian, Dr. Lewis E. Meeker.

Conference on Blindness.—The second conference of local charities, to be held on February 19, will be in the interests of the blind. There will be an exhibit of the variety of products of the industries of the blind, and Eben P. Murford will speak on the industrial and educational training and employment for the blind.

Alumni Meeting.—At the annual meeting and banquet of the Greater New York Alumni Association of the Albany Medical College, which was held January 24, Dr. Walter C. Gilday was elected president; Dr. Frederick W. Loughran, vice-president; Dr. Flavius Packer, secretary, and Dr. George F. Morris, treasurer.

Problems of Insanity.—The third of a series of public lectures, arranged for by the Psychiatrical Society, at the Academy of Medicine was delivered by Dr. Charles L. Dana, on "The Facts of Heredity and Their Relation to Mental Disorders." These lectures aim at placing before the medical profession and the general public facts with regard to mental disorders, which indicate the possibility and duty of initiating a movement towards general preventive measures.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended February 2, 354 cases of tuberculosis, with 206 deaths; 325 cases of scarlet fever, with 15 deaths; 315 cases of diphtheria, with 46 deaths; 138 cases of measles, with 5 deaths; 75 cases of whooping-cough, with 13 deaths; 35 cases of typhoid fever, with 9 deaths; 20 cases of cerebrospinal meningitis, with 17 deaths; one case of smallpox, with one death, and 122 cases of varicella, a total of 1,385 cases and 312 deaths.

To Instruct Teachers.—The Jewish Hospital for Deformities and Joint Diseases has just been opened under the direction of Dr. Henry W. Frauenthal. The hospital is non-sectarian and Dr. Frauenthal plans in connection with the regular hospital work for a course of lectures to teachers, instructing them in the causes of this class of diseases, such as bad positions in school, the carrying of too many books, etc. He would also teach them to recognize the early symptoms of disease, so that the children may receive treatment during the early stages of the disease.

Sale of Cocain.—On January 29 three men were fined in the Court of Special Sessions on the charge of violating the pharmaceutical law, by failing to put poison labels on bottles containing cocain. Two of them were fined $100 each and the third $50.——At a meeting of the Board of Health, January 30, the following important addition was made to the Sanitary Code: "No cocain or salt of cocain, either alone or in combination with other substances, shall be sold at retail by any person in the City of New York except upon the prescription of a physician."

Increase in Mortality.—The mortality for the week ended February 2 was considerably higher than for the corresponding week of last year. For this year the number of deaths was 1,612, and for the preceding year 1,434. This increase was confined to adults. The death rate for children under 5 years of age was lower than for last year. The chief cause of the increased mortality was the presence of influenza in a more fatal form than last year, affecting principally those of advanced years. Pneumonia caused 49 more deaths than in the corresponding week of last year, Bright's disease 14, and tuberculosis 28.

To Suppress Noise.—At the first meeting of the board of directors of the newly formed Society for the Suppression of Unnecessary Noise it was decided that the first work of the society would be to suppress unnecessary noises in the vicinity of the local hospitals. Word is to be sent to officials of car lines asking that the ringing of bells in the vicinity of hospitals be omitted. Notices will be posted in the different automobile clubs asking the members to go at half speed and to refrain from the use of horns and siren whistles while passing hospitals. An effort will also be made to do away with cobblestone pavements in front of hospitals.

Demand Pasteurized Milk.—Since the report of the Royal Commission on Tuberculosis has announced that human and bovine tuberculosis are reciprocally communicable diseases, and that milk containing tubercle bacilli is frequently the cause of tuberculosis in man, public interest in the subject of pasteurization of milk has been reawakened. The daily papers criticise the health commissioner for not taking more interest in securing a larger supply of pasteurized milk instead of endeavoring to purify the supply by inspecting dairies throughout the state. This inspection must necessarily be ineffectual, and again, a large part of the supply of milk of this city comes from other states, over which our inspectors could have no authority. It has been announced that about one-half the cattle in this state, or about 300,000, are tuberculous. The cost to the state of killing these cows is prohibitive and hence the only safe thing to do is to pasteurize the milk. The department of parks took up this question last year and asked for $20,000 for the purpose of establishing pasteurized milk bureaus in the public parks. They did not get the appropriation, though two booths were erected and supplied with pasteurized milk by private individuals. As a result of the conference on the milk question held in this city last November, a permanent milk committee has been appointed for the purpose of assisting the health department. This committee consists of 38 members, all of whom took part in the conference last fall. It has announced its plans and seems to favor an increase in the number of milk inspectors, and an effort to secure clean milk rather than an attempt to pasteurize the entire supply. It will endeavor to have the number of inspectors for the country increased to 80 and the number in the city increased by 50. It will also ask for more milk stations where pasteurized milk in bottles for babies may be distributed.

OHIO.

Portrait of Kinsman Presented.—On January 30 Dr. David N. Kinsman gave an address before the entire student body of the Ohio Medical University on "The True Physician." Dr. Josiah Medberry, on behalf of the faculty, presented to the Y. M. C. A. of the institution a portrait of Dr. Kinsman.

Society Meeting.—At the meeting of the Academy of Medicine of Toledo and Lucas County, held January 11, the following officers were elected: President, Dr. Walter H. Snyder; vice-president, Dr. Sidney D. Foster; financial secretary, Dr. Edwin D. Tucker; corresponding secretary, Dr. Nathan W. Brown; treasurer, Dr. John G. Kellar, and censor, Dr. Herbert E. Smead.

Postgraduate Course.—The Logan County Medical Society at its annual meeting, January 3, decided to establish a postgraduate course in accordance with the plan suggested by Dr. J. N. McCormack. The first meeting was held January 17, for the report of cases and presentation of patients and pathologic specimens. The following officers were elected at the annual meeting of the society: Dr. Warren W. Hamer, Bellefontaine, president, Dr. John S. Montgomery, Huntsville, vice-president, and Dr. Arthur J. McCracken, Bellefontaine, secretary.

Personal.—Dr. Louis Feid, Cincinnati, has been appointed jail physician.——Dr. Charles O. Dunlap, McArthur, has been appointed district surgeon of the Hocking Valley Railroad.——Dr. John B. Ury, Defiance, has resigned as clerk of the board of public safety.——Dr. Elmer G. Horton, Columbus, has been appointed city health officer.——Dr. Mary L. Austin has been placed in charge of the female department of the Ohio Home for Epileptics, Gallipolis.——Dr. Charles Wittenmyer, Arcanum, has been succeeded as coroner of Darke County by Dr. John E. Monger, Gettysburg.——Dr. George R. Schuster, Dayton, has succeeded Dr. Walter L. Kline as coroner of Montgomery County.——Dr. and Mrs. Henry F. Weis, Dayton, celebrated their golden wedding anniversary January 8.——Dr. John D. Westrick has been elected health officer of Defiance.——Dr. William H. Taylor, for 40 years obstetrician to the Cincinnati Hospital, has resigned and Dr. William D. Porter has been appointed as his successor.——Dr. Henry J. Austin, Geneva, has succeeded Dr. George E. Webster, Kingsville, as coroner of Ashtabula County.——Dr. Julius H. Jacobson has been reappointed surgeon in charge of the Infirmary Hospital, Toledo.——Dr. Elmer S. Protzman, Kenton, has succeeded Dr. Frank D. Bain as surgeon for the Toledo & Ohio Central Railroad.——Dr. and Mrs. Charles F. Cushing, Elyria, have gone to Florida for the remainder of the winter.——Dr. Morton W. Bland, Bellevue, has been sworn in as coroner of Huron County.——Dr. Herbert R. Pearson and family, West Milton, have gone to Port Orange, Fla., for the winter.——Dr. Charles W. Stoughton, Croton, has been appointed postmaster of that place.——Dr. Milo Wilson, assistant physician at the Athens State Hospital, has resigned and will enter private practice.——Dr. Joseph P. Baker has been elected president, and Dr. Charles W. Benedict, clerk, of the Findlay board of health.——Dr. Jacob A. Stout has been appointed a member of the board of health of Columbus, to succeed Dr. James U. Barnhill, term expired.——Dr. A. Per Lee Pease, Massillon, who is taking a trip to the Pacific Islands, was at Pago Pago January 12.——Dr. William Graefe has been appointed examining surgeon by the civil service commission for the Sandusky district.

PENNSYLVANIA.

Academy Election.—At the annual meeting of the Harrisburg Academy of Medicine, January 25, the following officers were elected: President, Dr. John F. Culp; vice-president, Dr. William E. Wright; secretary, Dr. Clarence R. Phillips; treasurer, Dr. Harvey F. Smith; librarian, Dr. Thomas S. Blair, and trustee, Dr. David S. Funk.

Communicable Diseases.—Scarlet fever of mild type is reported to be prevalent at the Pennsylvania Military College, Chester.——Scarlet fever is reported to be epidemic at Roaring Spring, where 12 cases have been reported.——The board of health of Kittanning has issued a proclamation advising citizens to boil all water for drinking and domestic purposes, on account of the prevalence of scarlet fever and other ailments.

Vaccination.—A bill has been introduced in the legislature which provides that the school boards shall have the exclusive right to determine whether or not children qualified for admission to schools in the district shall be vaccinated before being enrolled. No board, however, shall require vaccination of any pupil, should such pupil present a physician's certificate that the physical condition of said pupil will not permit the procedure. Should there be a smallpox epidemic, or danger of one, the school board may adopt such preventive measures as to compulsory vaccination, as it may deem fit. Any school director, parent, guardian or person violating any of the provision of the act shall be liable to a fine of from $5 to $1,000, provided that vaccination of children whose parents can not pay for the same, must be performed at the expense of the school district.

School for Feeble-Minded Overcrowded.—The legislative lunacy commission visited the Pennsylvania Training School for Feeble-minded Children, Elwyn, last week. The members learned that the institution is overcrowded and that there is need of a hospital to treat a large percentage of inmates who are incurable consumptives. Many additions to the present buildings will be required if the number of patients is not lessened. Dr. Martin W. Barr, the superintendent, conducted the commission through the buildings, pointing out the improvements needed. He said that of the 1,088 inmates 75 per cent. suffer with tuberculosis in some form, and that he has absolutely no place to treat 60 patients who are incurable; that it would cost about $35,000 to construct such a hospital, and he pleaded for the appropriation of such a sum. He also said that the institution is being crowded with criminal insane, who should not be sent there.

Personal.—Drs. Franklin Massey and Franklin L. Sallade have been appointed members of the board of health of Womelsdorf.——Dr. Isaac S. Graves, Jermyn, slipped and fell January 13, breaking his wrist.——Dr. John H. Twitmeyer, Sharpsville, slipped and fell at Shenango Furnaces January 17, breaking his nose.——Dr. Thomas M. Livingstone has been elected president of the Columbia College of Physicians and Surgeons, vice Dr. Jacob L. Ziegler, Mount Joy, deceased.——Dr. Haines L. Crothers, Chester, who has been ill, has recovered.——Dr. Frank B. Statler, Johnstown, has been appointed captain and assistant surgeon N. G. Pa., and assigned to duty with the Fifth Infantry.——Dr. J. Chester Wolfe, Ridley Park, sustained severe burns of the hands and face while lighting a gas radiator at his house, January 28.——Dr. S. B. Koser, Mountville, while driving across the Pennsylvania Railroad tracks at that place, was struck by a train and seriously injured.——Dr. William E. Wright, assistant physician at the State Insane

Hospital, Harrisburg, has resigned and will engage in private practice.——Dr. Warren Z. Anders, Trappe, is ill at the home of his parents with scarlet fever.

Typhoid Fever.—The officials of the State Board of Health have been notified of the conditions that exist at Martin's Creek, near Easton, where 12 cases of typhoid fever have developed within a few days. The waters of the Delaware River are reported to be polluted by the drainage from the infected district. There was a serious outbreak of the fever at the same place a year ago, when the state authorities compelled the cement companies to remedy the evils. This time, however, the trouble is said to exist on premises owned by the Howell estate, where foreigners rent shacks.——Between 30 and 40 cases of typhoid fever are reported in Huntingdon, where four deaths have occurred, and much alarm is felt. An expert has been summoned to examine the water. The water supply of Huntingdon is pumped from Stone Creek, just east of the town. It has been the main supply for many years. Despite the fact that the water is supposed to be filtered before it is sent through the mains from a pumping station, it is thought to be the cause of the epidemic. There are three school buildings in Huntingdon, all of which are supplied with water from Stone Creek. The water supply has been shut off and 1,500 children are carrying boiled water, milk, coffee and other beverages to school in bottles.

Philadelphia.

Bequests.—By the will of Martha J. Moore $250 was left to the Pennsylvania Hospital for the Insane.——The will of Martha E. Kortright devises $25,000 to the Presbyterian Hospital.

Society.—The alumni and undergraduates of the Medico-Chirurgical Hospital have organized a social club, of which Dr. Benjamin F. Devitt has been chosen president, and Dr. Harry A. Duncan, secretary and treasurer.

Schott in Philadelphia.—Dr. Theodore Schott, Bad Nauheim, Germany, whose visits to other cities have been mentioned in THE JOURNAL, also visited Philadelphia last week, as the guest of Dr. S. Lewis Ziegler. On Wednesday he spoke before the College of Physicians on treatment of chronic diseases of the heart. On Thursday a luncheon was given by Dr. S. Solis-Cohen, following which Dr. Schott spoke at the University of Pennsylvania on "Chronic Muscular Disease of the Heart," and in the evening was the guest of honor at a dinner given by Dr. James Tyson. On Friday he lectured for Dr. James M. Anders at the Medico-Chirurgical College on the "Pathology and Therapeutics of Angina Pectoris," and in the afternoon at Jefferson Medical College for Dr. James C. Wilson on "Acute Overtaxing of the Heart." In the evening he was the guest Dr. Anders at dinner at the Union League Club.

Elections.—The Philadelphia County Medical Society has elected the following officers: President, Dr. James B. Walker; vice-presidents, Drs. William S. Newcomet, Joseph M. O'Malley, Wendell Reber, Robert H. Chase, Morris J. Karpeles, Franklin Brady and William S. Wray; secretary, Dr. Ross H. Skillern; treasurer, Dr. Collier L. Bower; censor, Dr. Charles A. E. Codman, and district censor for the Medical Society of the State of Pennsylvania, Dr. Albert M. Eaton. In the future the Northeast Branch of the Philadelphia County Medical Society will hold its meetings in the newly finished Frankford Branch Auditorium of Philadelphia's free library system. The election of officers and committees to serve for 1907 resulted as follows: Dr. W. E. K. Wurcel, chairman; Dr. William Harmar Good, clerk; committee on scientific business, Drs. Albert C. Buckley, William H. Morrison, S. Reughley and W. Harmar Good, and committee on increase of membership, Drs. Boyer, George C. Hanna and E. A. Drake.——The Section of General Medicine of the College of Physicians at its January meeting elected the following officers to serve during 1907: Dr. Aloysius O. J. Kelly, chairman, and Dr. George W. Norris, clerk.

SOUTH DAKOTA.

Societies Elect Officers.—At the annual meeting of the Aberdeen District Medical Society, held January 16, the following officers were elected: President, Dr. C. E. McCauley, Aberdeen; vice-president, Dr. W. M. Edgerton, Faulkton; secretary, Dr. E. J. Clemons, Aberdeen; treasurer, Dr. M. C. Johnston, Aberdeen; censor, Dr. J. D. Jones, Groton.——At the annual meeting of the Yankton District Medical Society the following officers were elected: President, Dr. J. Roane, Yankton; vice-president, Dr. F. A. Swezey, Wakonda; secretary and treasurer, Dr. J. L. Stewart, Irene; delegate, Dr. S. M. Hohf, Yankton; censor, Dr. E. M. Morehouse, Yankton.

VIRGINIA.

Physicians Acquitted.—Drs. McMinn M. Pearson and Joseph H. Delaney, Bristol, who had been charged with malpractice by J. M. Bevans and wife, Johnson City, Tenn., who sought damages of $10,000, were acquitted January 22.

Society Election.—At a meeting of the Patrick Henry Medical Society, held in Martinsvile, January 14, Dr. Benton F. Tatum, Stuart, was elected president; Dr. Robert R. Lee, Martinsville, vice-president, and Dr. J. Russell Perkins, Spencer, secretary.

Contagious Diseases.—The health board of Hanover County met in Atlee, January 28, and decided to establish a rigorous individual quarantine and to enforce vaccination. Dr. Gray was appointed special health officer, with full power to quarantine and vaccinate whenever necessary.

McCormack in Virginia.—Dr. J. N. McCormack will address the students of the Medical College of Richmond at 1 o'clock, the general medical profession at 5 o'clock, and the public at 8:30 o'clock, March 2. At the public lecture Dr. McCormack will be introduced by the governor of Virginia.

Proposed Law in Indiana, Not Virginia.—In THE JOURNAL, January 19, a news item concerning proposed health regulations in Indiana was, by mistake, credited to Virginia. We understand that no such legislation is proposed in Virginia, but that the bill referred to has been prepared by the State Board of Health of Indiana.

Personal.—Dr. Stark A. Sutton, Norfolk, has resigned as lieutenant and assistant surgeon of the Seventy-first Infantry.——Dr. Robert R. Robertson, Portsmouth, has been appointed as jail physician, vice Dr. Charles L. Culpepper, deceased.——Dr. J. Richard Adams, Blackstone, has been appointed physician of Nottoway County, vice Dr. Algernon S. Epes, deceased.——Dr. William G. Fox, surgeon at the Home Hospital, Hampton, has resigned, to take effect February 17.

GENERAL.

Major Kean's Work on Cuban Yellow Fever.—Major J. R. Kean, surgeon, U. S. Army, who was sent to Cuba at the beginning of the recent American occupation for special duty with the department of health, is making a flying visit to Washington. When it was found, on the arrival of American troops, that yellow fever was again prevailing in Cuba, Major Kean, who had taken such an active part in the suppression of that disease in the previous occupation, was put in practical charge of the situation and, by virtue of his intelligent and active measures, soon had the disease under control. Since January 7 no case of yellow fever has been reported in Cuba and, while a sporadic case may be expected to develop occasionally, Major Kean does not expect any spread of the disease. There has not been a single case among the enlisted force and only one among the officers of the American troops.

CANADA.

Canadian Association for the Prevention of Tuberculosis.—The annual meeting of this association will be held at Ottawa, March 13-14. Dr. Charles Sheard, medical health officer of Toronto, and chairman of the Ontario Board of Health, will deliver a public address on "The Home Treatment of Tuberculosis."

Canadian Nobel Prizes.—By the will of the late A. McCharles, a prospector of Sudbury, Ont., the University of Toronto has received $10,000 in Ontario government bonds, which is to be used in giving prizes on a small scale similar to the Nobel plan. Two clauses interest medical men: A prize is to be given for any important discovery, invention or development by any Canadian which will lessen the dangers and loss of life in connection with the use of electricity in supplying power and light; and another for any marked public distinction achieved by any Canadian in scientific research in any useful and practical line.

Medical Legislation.—The Canadian Press Association, just in session in Toronto, attacked the Ontario Medical Council and other bodies composed of "irresponsible" men. The association will ask the legislature to amend the Ontario medical act.——A bill has been entered in the Quebec legislature to amend the law respecting physicians and surgeons by which it is proposed to extend the medical course from four to five years and better to define what constitutes the illegal practice of medicine. It will also seek to define better the powers of the medical council to discipline members and to permit of the board or the College of Physicians and Surgeons giving grants to medical societies.

Money for Hospitals.—When the special committee toward erecting a tuberculosis sanatorium in Manitoba has collected $5,000 the provincial government has promised to donate $25,000.——A nurses' residence has been opened in connection with the Sick Children's Hospital, Toronto. The building was the gift of Mr. John Roos Robertson, Toronto, proprietor of the *Evening Telegram*, who has been very generous to this institution. The building cost $130,000.——The Ontario government will establish cottage hospitals or rural colonies for dealing with patients afflicted with mental delusions.——The Isolation Hospital and Nurses' Home in connection with the Vancouver General Hospital is now completed.——The nurses' home in connection with the Winnipeg General Hospital was formally opened February 1.——Wingham, Ont., has a new hospital.

Personal.—Dr. George R. McDonagh, Toronto, has gone to Egypt.——Dr. Loir, a pupil and nephew of Pasteur, and a graduate of the medical faculty of Paris, has been appointed to the chair of biology in Laval University, Montreal.——Dr. John Malloch, Toronto, who has been in England the past two years and was recently admitted F.R.C.S. England, has been appointed pathologist to Victoria Park Hospital, London, Eng. ——Dr. D. A. L. Graham has been appointed assistant pathologist at the Toronto General Hospital, to assist Dr. A. H. Caulfield, who has gone to England, for graduate work.——Dr. R. B. Burwell has been appointed clinical pathologist to the Toronto General Hospital.——Dr. John Stewart, Halifax, after visiting in Toronto recently, went to Bermuda for his health. ——Dr. Harry Watson, Winnipeg, Man., who a few years ago practiced in Ottumwa, Iowa, and then was in the Philippines with the United States Army as surgeon, is seriously ill in St. Boniface Hospital, Winnipeg.——Dr. H. A. Wright's office and home at Oak Lake, Man., was recently destroyed by fire. ——Dr. Cluff, Winnipeg, has been appointed resident pathologist at St. Boniface Hospital, Winnipeg.——Dr. L. S. McKid, Calgary, Albt., is studying abroad.——Dr. George McDonald, Calgary, has been taking graduate work in New York.——Dr. J. B. Chambers, Minto, Man., has been appointed assistant superintendent to the Hospital for the Insane at Brandon, Man.

FOREIGN.

Death of Greek Medical Centenarian.—Our exchanges report the death at Athens of A. Marvoyeni, M.D., at the age of 111.

Medical Men Arrested in Russia.—According to the official organ of the National Russian Medical Association 972 physicians had been arrested for participating in the revolutionary movement, up to November, 1906, and since then a number of arrests have been made.

Sixth German Congress of Orthopedic Surgery.—This congress will be held in Berlin, commencing April 2, the day before the German Surgical Congress convenes at the same place. For further particulars apply to Dr. Joachimsthal, Magdeburgerstrasse 36, Berlin W.

Seventh International Congress for Physiology.—This congress will meet at Heidelberg Aug. 13-16, 1907, with Prof. A. Kossel in the chair. An exposition of scientific apparatus will be held in connection. Address all communications to the Physiologische Institut, Heidelberg, Germany.

Congress of Stomatology.—The first French Congress of Stomatology will take place in Paris, Aug. 1-5, 1907, and will be open to all doctors of medicine who are interested in dental and oral science. For further particulars one may address the general secretary, Dr. Chompert, 182 rue de Rivoli, Paris.

Stipends for Medical Students.—An endowment fund has recently been bequeathed to the Odessa University to aid worthy students with an annual stipend of 1,000 roubles, about $500, each. The testator stipulated that the amount must be as large as this, as no student can devote himself entirely to science unless his material wants are fully provided for.

Honors for Danish Physicians from Outside Their Own Land. —During 1906, for his cancer researches, C. O. Jensen received the Walker prize, the first time it was awarded. S. M. Jorgensen received the Lavoisier and Berthelot medals for his research on the ammonia compounds, and A. Krogh the Seegen prize for his work on the elimination of nitrogen in the respiration.

Proposed Memorial to Semmelweis at Vienna.—A committee has been appointed by the Vienna medical councils to collect subscriptions to erect a memorial to Semmelweis at Vienna. The appeal issued by the committee is over the signatures of Regnier, Dirmoser and Savor. Vienna was the principal scene of his labors and witnessed what he called the "rising of the puerperal sun."

International Medical Study Trip.—The "international medical excursion" for 1907 will start from Paris in August and visit the health resorts of Austria, Hungary and southern Germany. The office of the organizer of the trips is at Paris, rue de Rivoli 184.

Five Million Dollars for Paris Pasteur Institute.—A cable despatch announces that the will of the late multimillionaire of Paris, Daniel Osiris, who died February 4, bequeathes $5,000,000 to the Paris Pasteur Institute. Osiris has given many gifts to science and the public before, and in 1890 presented to the nation Malmaison, the historic residence of the Empress Josephine from 1789 to 1814.

Private Gift of Clinic for Cutaneous Affections at St. Petersburg.—A local merchant has built and equipped at an expense of about $200,000, a modern clinic for cutaneous diseases and syphilis, with laboratory, etc., for experimental research. The endowment provides that 10 of the total 30 beds are free. Ssolowjew is in charge of the clinic, which is connected with the Institute for Experimental Medicine.

Course of Lectures in Medical Pedagogy.—A group of Paris internes have organized a course of elementary practical medical pedagogy in medicine, surgery, children's diseases, gynecology, cutaneous affections and syphilis. Each course comprises ten lessons and the price is 20 francs ($4). Bord, interne at the Broca hospital, has charge of the registration, the number of attendants at each course being limited.

Physicians in the Spanish Cabinet.—Another one of the three editor of the *Siglo Medico*, Madrid, has been appointed to an important political position, O. Angel Pulido as sub-secretary of state. Another physician, G. Cabanas, has just been made minister of public instruction. One of his first acts was the appointment of two commitees to further the progress of education in the schools and colleges. Each committee includes a number of physicians, Ramon y Cajal, Cortezo, San Martin and others.

Repression of Venereal Disease.—The German Society for Repression of Venereal Disease intends to discuss the question of sexual pedagogies at its next congress, to be held at Mannheim, May 24-25, 1907. The subject will be studied in all its bearings, with addresses by teachers of both sexes, by physicians, by mothers, etc. Foerster of Zurich, author of Jugendlehre, will open the discussion; Hellpach of Carlsruhe will deliver the address on "Sexual Dietetics," and Kemsies of Weissensee, the address on "Enlightenment of the Pupils in the High Schools and Colleges."

Chair of Medical Parasitology at Paris.—One of the oldest chairs in the medical school at Paris is that of medical natural history. Originally devoted mainly to botany, the trend of the times has given parasitology paramount importance, and the title has now been changed to the chair of medical parasitology and natural history. Prof. R. Blanchard has been the incumbent since 1897, and founded the *Archives de Parasitologie*, now in its second volume. He also established the Institut de Médecine coloniale, which has just closed its fifth course of lectures. It has awarded a total of 133 diplomas. About half the students are foreigners, mostly from Spanish America.

Acquittal of Dealer Sued for Selling "Ear Spectacles" Under False Pretenses.—The German boards of health at some places have warned against the extravagant claims for the electric ear spectacles put on the market by a London firm. Suit was instituted against a Berlin merchant who sold them, and experts testified that the ear spectacles were solely designed to bleed the public, without any therapeutic value from the weak galvanic current generated by the few small sheets of zinc and copper in the apparatus. The court expert, however, declared that the apparatus might possibly have some action as a hydrotherapeutic measure, owing to the moist applications to the ears, and it also might benefit by suggestion. The defendant as a layman had no opportunity nor cause to pass on the merits of the apparatus, but merely acted as the middle man. The suit against him was consequently dismissed.

Suits Against a Physician for Mistake in Prescription.—A German physician ordered instillation of a 50 per cent. solution of silver nitrate in the eyes of a newborn infant whose mother he was attending. He gave a prescription to this effect, and this strong concentration was used. The resulting inflammation was finally controlled by a specialist, but vision in one eye is permanently impaired. The accused ascribed his mistake to unusual stress of professional work at the time. The court accepted the plea of extenuating circumstances and a fine of $25 was imposed. The father of the child is now suing the physician for nearly $19,000 damages.

Becquerel of Paris Receives the Helmholtz Medal.—The German Academy of Sciences has presented the Helmholtz medal this year to Henry Becquerel, the French scientist who discovered the Becquerel rays. One of the Nobel prizes in 1903 was divided between him and the Curies.

LONDON LETTER.

(From Our Regular Correspondent.)

LONDON, Feb. 2, 1907.

"Patent Medicines" in Great Britain.

Americans have the reputation—undoubtedly well-deserved—of being the largest consumers in the world of "patent" and proprietary medicines and of nostrums of every description. The quantity of so-called remedies for all diseases under the sun, which are voraciously, nay, cheerfully swallowed by members of the great American public yearly, is, in the words of Dominie Sampson, "prodiguous." Warnings that a goodly proportion of many of the widely advertised cure-alls are more calculated to wreak harm than to do good has had little effect. But although America can lay claim to the proud position of easily leading the world, both in the manufacture and consumption of nostrums, Great Britain has no rival for the second place, unless it be Canada. The sale of "patent medicines" in Great Britain had advanced by leaps and bounds. It has rec tly been announced that the sum paid by the British public for "patent medicines" in the year ended March 31, 1906, was $15,633,400. Some patriotic Englishmen who wish to excuse their countrymen for the contraction of the "patent medicine" habit, say that it is chiefly due to the insidious wiles of the American nostrum vendor and advertiser. Whatever may be the cause, and there can be but little doubt that American "patent medicines" and American methods of advertising have made great headway in Great Britain of late, the fact remains that the people of Great Britain have developed an ever increasing tendency to consume remedies of every kind. Perhaps this may be one of the reasons for the much to be deplored physical and mental degeneration of the young in Great Britain.

Bioplasm in Great Britain.

Bioplasm is by no means unknown in Great Britain although it must be said that the product has made but little headway among the British consumers of patent medicines. It may, however, be instructive for the readers of THE JOURNAL to learn of the *modus operandi* in Great Britain of the firm which controls bioplasm. The methods are very similar to those employed in the United States. Some time ago, an advertisement appeared in the "Agony" column of the London *Times* of much the same tenor as that which was copied in THE JOURNAL. The advertisement purported to emanate from Mr. G. P. Burnham, Delmar, N. Y. When this gentleman was written to, a lengthy account of the manner in which he had been cured of locomotor ataxia in an advanced stage was received. It was also added that Mr. Burnham gave all particulars of his case and cure from purely philanthropic motives, but that if any user of bioplasm who employed it by Mr. Burnham's recommendation derived benefit therefrom, such a person might send a subscription which would be devoted to making known far and wide this marvelous remedy. Afterward a flood of circulars, etc., was received from the Bioplasm company.

Feeding of School Children in England.

The provision of meals bill has become law in England. This bill provides that all poor children whose parents state that they can not afford to give their children proper meals will be fed at the public expense. The act, however, must be adopted by a local authority before it can come into force. The question of the mental and physical deterioration of the English race, and especially of the rising generation of the towns, has been exciting much alarm within the past few years. It is acknowledged that the town bred children of Great Britain have deteriorated, and lack of proper food has been pointed out as one of the main causes. The bill recently passed, however, has provoked much severe criticism. It is claimed that to absolve parents from the responsibility of feeding their offspring, must in many instances lead to grave abuses. The question is well summed up as follows: 1. Want of food is one of the least important of the causes of distress, and in London and generally through the country, so far as it exists, it is met and adequately dealt with by private charity. 2. The unsatisfactory physical condition of a proportion of school children arises from causes in operation before school age is reached, causes which would be untouched by the proposed measure. 3. Experiments both in England and in Paris (*cantines scolaires*) have shown that the system is both expensive and unsatisfactory. It is asserted, in short, that the measure will encourage and perpetuate parental neglect, selfishness, and ignorance, which are now the principal causes of children's distress, and will do so at the cost of those who are now performing their duty to their children and to the state.

Leprosy in Cape Colony.

The alarming increase of leprosy in South Africa has been described in a previous letter. In connection with this subject Dr. Sutherland Black, formerly superintendent of the great leper establishment at Robben Island, read an important paper at the Polyclinic entitled, "The Prevalence of Leprosy in Cape Colony, and Some of Its Problems." Dr. Black described the attitude of the government as one of anxiety and perplexity, due to doubts surounding some of the elementary problems of the disease. At Robben Island there are now 600 inmates and nearly as many more in another asylum for natives. In addition it is calculated that there is a nearly equal number of lepers at large, for whom there is at present no accommodation. The authorities have now to face a great increase of the disease in Cape Colony. With regard to the asylums Dr. Black stated that there is need of more systematic treatment, of proper organization of the patients' labor and of hygienic improvements in the buildings. The death rate of the inmates from tuberculosis has been excessive. He found that the nodular variety of leprosy is more common among the whites than among the natives. During the seven years he spent at Robben Island he tried many drugs and obtained some good results from creosote, but found most advantage from chaulmoogra oil in considerable doses. He thinks that the disease is infectious only during the existence of nasal ulceration. After this stage has passed he suggested that there is no necessity for segregation. In the discussion which followed Mr. Hutchinson said that for twelve years the Cape Government had enforced the segregation of lepers and nowhere else had the law been carried out with such vigor and consistency. But this experiment in segregation has been an utter failure. Leprosy spontaneously died out in the middle ages—a result which would have been impossible if it were a contagious disease. Segregation should be abolished, he said, and more sensible measures adopted. Though thoroughly well conducted and though everything possible is done for the lepers at Robben Island the establishment is a prison and the high death rate from tuberculosis is due, he declared, to the state of utter hopelessness engendered in the unfortunate "prisoners" by the utterly unnecessary and useless procedure of segregation.

Changes in Meat Essences Kept in Tin.

A large consignment of tins of beef essence prepared several years ago and sent to South Africa during the war, being no longer required by the army, was sold and recently returned to Great Britain. They were found to differ from new samples, being fluid and discolored, although sterile. The changes were found to be due to metallic contamination, the essence having absorbed tin from its receptacle. Metallic tin was present in amounts between 0.02 and 0.03 per cent. (between 1½ and 2 gr. per pound). The bacteriologist thought that this amount might produce symptoms of acute poisoning. In invalids or in prolonged use even the minutest amount of metallic impurity would be objectionable. It was suggested that the solvent action on the tin was due to the presence of organic acids, such as lactic and carnic acids.

Report on Anthrax.

The first annual report of the anthrax investigation board for Bradford has been issued. This board consists of representatives of the employers and work people engaged in wool combing, spinning and manufacturing hair, wool and alpaca. With the help of Dr. Eurich as bacteriologic expert they have arrived at some important conclusions as to infection of workers. During the first year of existence of this board 17 cases of anthrax were reported to them, of which 4 were doubtful. Out of the remaining 13, 7—all in persons over 40—were fatal, and 6—all in persons under 33—ended in recovery. Of the former all the patients but one suffered from internal anthrax, while the latter all had the disease in external form. All the patients, except the abnormal one mentioned, contracted the disease during the preliminary operations of handling the materials, principally before they had been washed. The most dangerous materials were found to be Persian wool, camel hair, and some kinds of mohair. The board recommends that certain dangerous kinds of work shall be scheduled and the materials only combed under the supervision of a government inspector.

Pharmacology

THE AMERICAN DRUGGISTS SYNDICATE.

An Organization for Appropriating and Dispensing Physicians' Prescriptions.

While the legal status of the prescription may be unsettled, it would be claimed by few, we think, that the druggist had any legal or moral right to its use in counter prescribing. This, however, is the avowed *raison d'être* for a druggists' combine calling itself the American Druggists Syndicate, or, as it is more euphoniously known to the "trade," the A. D. S.

This concern, which brazenly announces that it is dispensing physician's prescriptions in ready-made packages, for the alleviation of all the ills that flesh is heir to, has the official sanction of that self-proclaimed friend of the medical profession, the National Association of Retail Druggists. Mr. Jacob Diner, a member of the executive committee of the N. A. R. D., only recently placed the seal of his approval on the combination in an interview reported in the *Apothecary*, and by becoming a stockholder in the concern. When first organized, the syndicate was under the ban of suspicion and was looked on with misgiving by the National Association of Retail Druggists. This distrust, however, did not arise from any shock to the ethical conscience of the association, but simply because of a faulty "serial numbering" plan. This plan, it should be explained, is a means adopted by the manufacturers for the tracing of any package sold below the contract price, each package sent from the factory bearing its definite serial number; this prevents the "cut-rate evil" of which so many large department stores are guilty. When this moral delinquency had been remedied, the A. D. S. was received with open arms and at once became, so to speak, a member in good standing.

While the fate of the syndicate was in the balance, waiting for approval of the N. A. R. D., it got out a magazine with the high-sounding title of "*The Voice of the Retail Druggist*." This journal, which, bogey-man-like, was to frighten the N. A. R. D. into submission, was edited by J. B. Duble, ex-chief organizer of the N. A. R. D. and had two issues; more correctly *one* issue, for the first issue had a very limited circulation. By this time, the National Association of Retail Druggists, for reasons unknown but easily guessed, had reconsidered its attitude and given official recognition to the American Druggists Syndicate. Since then the "*Voice*" has become aphonic and its worthy editor has become field representative of the *Apothecary*, which magazine has taken a graceful tumble from an attitude of vituperative abuse to one of smiling acquiescence.

Whether the remarkable change of heart that has occurred is due in any way to the fact that, at its first annual meeting, the syndicate announced a gross profit of $62,000 and declared a 20 per cent. annual dividend to be paid quarterly, we may never know. Remembering, however, that nothing succeeds like success, we may venture the opinion that it probably is.

The reported founder of the A. D. S. is a Mr. C. H. Goddard, an advertising man, who went east about a year ago to organize this company of which he is now secretary. The first men to become interested in this concern were the dissatisfied stockholders of the Rexall Company, of "Vinol" fame. At the time the N. A. R. D. was opposed to the syndicate, Mr. Goddard was given an opportunity to "be good" by the Metropolitan Association of Retail Druggists of New York City. This opportunity he "turned down" and when before the association's committee he told them point-blank that within a year they would be handling his goods. This prophecy has been fulfilled. While before the committee he was asked by Mr. Diner, the chief inquisitor, whose conversion we have mentioned, if the advertising claims of the syndicate were not a representation to the public that druggists were in the habit of stealing their formulas from physicians. Mr. Goddard admitted this and also that druggists steal formulas.

The advertising referred to is a pamphlet they distributed widely, especially on the Pacific coast, in which several common ailments are considered under their appropriate headings. For example, for headache—specific term!—two prescriptions are given, written in full, with the statement that while these are good, nay, *excellent*, the *best* prescription is that put up by them in a "ready-made package and marked Rx 1000, A. D. S. Headache Wafers;" (we may note here, parenthetically, that each wafer contains 4 grains of acetanilid,) "they cure where all others have failed." Have you dyspepsia? The "worst forms are *relieved* by these"—and here follow two ordinary pepsin mixtures—"but instantaneous *results* are secured and a permanent cure effected in many cases by taking Rx 1000, A. D. S., Digestive Tablets. A thousand druggists guarantee it." And more to the same effect.

ITS MEANING.

What does the whole scheme mean? Simply this, that a few of the prominent retail druggists after selling for years the various nostrums on the market, have decided that it will be more profitable if they themselves go into the "patent medicine" business and thus participate in the gigantic profits accruing from humbugging the public. It means that they use, or deceive the public into thinking they use, the physicians' prescription as the basis for their products. It also means, that the National Association of Retail Druggists is playing with the physician a "heads I win, tails you lose" game, and that while vowing friendship for the profession in public, it goes hand-in-glove with those interests most strongly inimical, not only to medicine, but to public health. It means, in short, that the N. A. R. D. puts its official stamp of approval on the nefarious nostrum evil and by so doing becomes an aider and abetter in the continuance of an abuse that the better class of pharmacists, the medical profession, and the public have been earnestly striving to eradicate.

ITS PERSONNEL.

The officers of this syndicate, aside from its advertiser-publisher-promoter-secretary, Goddard, are all either druggists or are financially interested in the drug trade. The president is George Ramsey, who is also general manager and vice-president of the Hegeman corporation that has seven large drug stores at the following places in New York City: 200 Broadway; 205 Broadway; 200 W. One Hundred and Twentyfifth Street; 1917 Amsterdam Avenue; Third Avenue and One Hundred and Forty-ninth Street, and in the *Times* Building at Broadway and Thirty-ninth Street. R. Scherick, the first vice-president, is president of the Scherick Drug Company of New York City with two large stores at 487 and 525 Broadway, respectively, and at 525 Park Avenue. The second vice-president is Dr. William C. Anderson, dean of the Brooklyn College of Pharmacy, former president of the N. A. R. D., and a member of the American Pharmaceutical Association. His pharmacy is situated at 320 Lafayette Avenue, Brooklyn. George W. Hackenburger, the third vice-president, is general manager of the Miner Drug Company, which operates the Original Bowery Pharmacy and a store at 112 E. One Hundred and Twenty-fifth Street. On the board of directors we find Charles Huhn of 98 Western Street, Minneapolis; Edward A. Hays, at Middle and Free Streets, Portland, Maine; F. A. Davidson of Boston, the principal owner and manager of the Theodore Metcalf Company of Boston; E. C. Kinsel, with a drug store at 26 Michigan Avenue, Detroit; E. L. Weston, secretary of the Syracuse (N. Y.), Retail Druggists' Association, with a store at 111 N. Salina Street, Syracuse; Otto G. Hottinger, of the Hottinger Drug and Truss Company, Chicago; C. A. Codman, manager of the Standard Drug Company of Cleveland, Ohio, with stores at Perry and Prospect, Cedar and Vienna, and Erie and Superior Streets, respectively, and C. S. Roberts of Syracuse, N. Y.

"THE TRANSATLANTIC QUACK."

Further Remarks on Nostrum Advertising in Religious Papers.

Strikingly apropos of the article on "Nostrum Advertising in Religious Papers," in THE JOURNAL, February 2, comes a voice from across the Atlantic in the form of an article in the *British Medical Journal*, January 26. The article is headed "The Transatlantic Quack." Surely every loyal American citizen must feel a glow of honest pride on reading the opinion, held in British professional circles, of American business methods. The writer says:

Many hard things have been said about American business ways, but nothing puts them in a more despicable light than the letters addressed by so-called companies carrying on a medical business in this country in the name of American quacks. One of the most repulsive of these purports to be sent out by the Theo. Noel Company, Limited, dating from 29 Ludgate Hill, London, E. C., whose vice-chairman is said to be J. R. Noel, M.D., and is addressed to clergymen. The merits of the company's nostrum called Vitæ-Ore are heralded in this style: "Is it not a fact that sickness among the members of your congregation is a great hindrance to your plan and work? Do you not often wish that, like the Great Physician, you could heal the body as well as minister to the soul? You may be tempted to throw this letter down and conclude that we are talking cant for business purposes." [The writer of this circular anticipates, with marvelous clearness, the effect produced on any intelligent reader by his composition.] "We admit we are talking business, but what is the use of preaching that Christianity is applicable to all conditions of business life, if as soon as a Christian business man refers to Divine things, he is set down as a charlatan talking cant?"

Then follows an offer to supply, gratis, packets of "Nature's tonic and healer," to be paid for one month from receipt, only if benefit has been derived from them, "in the hope to benefit some of these poor persons and thus set them talking about Vitæ-Ore." The writer boasts of the number of church ministers who have availed themselves of this offer and of the "editors of the leading medical religious newspapers who have endorsed the claims of the company's remedy."

As shown in the cut printed in THE JOURNAL,* the *Cumberland Presbyterian* (issued weekly by the Cumberland Presbyterian Publishing Union) advocates the "Peace, Unity and Purity of the Church" on the front cover and Vitæ-Ore on the back. The English branch of the Theo. Noel Company asks English clergymen to use its nostrum, so that "like the Great Physician, you can heal the body as well as minister to the soul," and when a minister of the Cumberland Presbyterian church remonstrates against the prostitution of the pages of his paper, the Rev. James E. Clarke, editor, replies that it is "hardly the function of such a paper as the *Cumberland Presbyterian* to decide questions in accordance with any professional code of ethics," while the manager writes that "the very papers which, with axes to grind which other papers understand, are leading the crusade against 'patent medicines' are carrying in their columns at the same time lies galore, setting forth other wares."

Is one to conclude, from this specimen of ecclesiastical logic, that the argument of the management of the *Cumberland Presbyterian* is that since all advertising is founded on fraud, there is no reason why their paper should not derive as much profit as possible from such conditions? As mere laymen, we are led to remark that such a conclusion savors quite as little of early Christian ethics as it does of any known code of professional ethics, however much it may be in accord with the commercialism of modern religious journalism.

Would the Rev. Mr. Clarke wish his readers to believe that, if the Great Physician were to-day walking the earth among men, he would distribute advertising circulars and sample packages of Vitæ-Ore, instead of loaves and fishes to the multitude that hung on his words, and thus "heal the body as well as minister to the soul?"

Can one imagine Paul of Tarsus, who fought with beasts at Ephesus and who died a martyr for his faith, or the beloved John on the Isle of Patmos, taking the position that it was "hardly his function to decide questions in accordance with any professional code of ethics?"

Would the advertising manager of the *Cumberland Presbyterian* have been willing to certify that Luke, the beloved physician, was "personally known to the publishers of this paper as a reliable and competent physician" unless he had entered the office of this religious journal with a fat advertising contract in his hand?

Can the whole filthy, disreputable nostrum business boast of a more disgraceful piece of literature than this blasphemous and sacrilegious attempt—shown in the *British Medical Journal*—to use the personality of Jesus Christ to boom the sales of a nostrum and to make advance agents out of weak-minded Christian clergymen? And can any honest member—either lay or clerical—of the Cumberland Presbyterian church, or any other church, look without shame on an editor and a paper which, while claiming to advocate the purity of the church have no better defense to offer than that all advertising is lying anyhow, and that other papers do the same thing? Yet much time has been spent in discussing the reasons why the church of to-day lacks the vigor and energy of apostolic times. A glance into some of our religious journals will supply at least a partial solution of the problem.

* THE JOURNAL, Feb. 2, 1907, p. 436.

HISTORICAL.

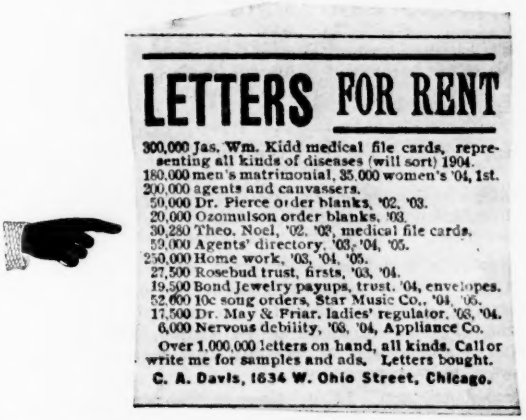
The interesting nostrum mentioned above has been exploited for the past fifteen years by its owner and "discoverer" (?) Theophilus Noel. This gentleman was formerly engaged in the newspaper business and later in mining and is said to lay claims to special knowledge as a geologist and mineralogist. We are informed that he came to Chicago in 1891 and engaged in the "patent medicine" business, advertising and selling Vitæ-Ore, which he claimed to be a mineral which he had discovered somewhere in Florida or Mexico. This preparation is sold in the form of a powder put up in envelopes which retail at $1.00 each. It is supposed to be dissolved in water and drunk. The advertisements, which appear mainly in religious papers, state: "It is a mineral remedy, a combination of substances from which many of the world's noted curative springs derive medicinal power and healing virtue. These properties of the springs come from the natural deposits of mineral in the earth through which water forces its way, only a very small proportion of the medicinal substance being taken up by the liquid."

An analysis published in Bulletin No. 69 of the North Dakota Agricultural College Experiment Station states that Vitæ-Ore is simply ferric subsulphate (Monsel's salt), to which a little magnesium sulphate (Epsom salt) has been added. Our readers can readily choose the more reliable of these two statements. One can also readily understand how exceedingly beneficial Monsel's salts and Epsom salts would be in cases of rheumatism, diabetes, Bright's disease, gout, "stomach trouble," diphtheria and the other diseases for which Vitæ-Ore is recommended.

This nostrum is also interesting as showing the profits to be derived from such a business. In 1891 Mr. Noel is said to have been compelled to peddle his nostrum in person in order to obtain sufficient means to start his business. In 1893, only fourteen years ago, he is reported to have had in his employ two girls and three men. The extent of the establishment was three or four rooms and a basement. The business now occupies a three story building covering three building lots. The owner has a summer home in Michigan, a winter home in California, a permanent residence in Chicago and spends most of his time in travel. It is alleged that one of his recent trips to Germany was for the purpose of being treated for chronic rheumatism, which evidently Vitæ-Ore had failed to relieve. It is claimed that the present assets of the company amount to over $200,000.

As has been said, most of the advertising of this firm has been carried on in the religious papers. Here we have further evidence that piety, properly exploited, is a valuable asset in the "patent medicine" business.

However, the founder of this edifying mixture of faith and works is no longer the dominant factor in the business. One is led to wonder whether rheumatism has had anything to do with his retirement. Surely not, since the advertisement states that "Thousands of people testify to the efficacy of Vitæ-Ore in relieving and curing rheumatism," and that "This medicine cures, whether the sufferer believes it or not." The principal factor in the business is now Dr. Joseph R. Noel, who was graduated in 1894 from Jefferson Medical College, practiced three years at Ogden and Harrison Streets, Chicago and taught therapeutics for a time at one of the night medical schools of Chicago. Did he advise his students, we wonder, to prescribe Vitæ-Ore for rheumatism? Did he learn his present therapy at Jefferson? He has recently opened a bank, possibly as an outlet for the money sent him by readers of religious papers. It is possible that he foresees the coming end of the nostrum business, and wishes to "make to himself friends of the mammon of unrighteousness." We are informed that he is the J. R. Noel, M.D., alluded to in the extract from the *Lancet*.



LETTERS FOR RENT

300,000 Jas. Wm. Kidd medical file cards, representing all kinds of diseases (will sort) 1904.
180,000 men's matrimonial, 35,000 women's '04, 1st.
200,000 agents and canvassers.
50,000 Dr. Pierce order blanks, '02, '03.
20,000 Ozomulson order blanks, '03.
30,280 Theo. Noel, '02, '03, medical file cards.
59,000 Agents' directory, '03, '04, '05.
250,000 Home work, '03, '04, '05.
27,500 Rosebud trust, firsts, '03, '04.
19,500 Bond Jewelry payups, trust, '04, envelopes.
52,600 10c song orders, Star Music Co., '04, '05.
17,500 Dr. May & Friar, ladies' regulator, '03, '04.
6,000 Nervous debility, '03, '04, Appliance Co.

Over 1,000,000 letters on hand, all kinds. Call or write me for samples and ads. Letters bought.

C. A. Davis, 1634 W. Ohio Street, Chicago.

The above is reproduced from the *Ladies' Home Journal*. Editors of religious papers will no doubt be pleased to learn that Brother Noel, in selling the names of those sufferers who have written him in hopes of obtaining relief, is following the scriptural injunction not to let his right hand know what his left hand doeth.

Isn't this a delectable mixture? To make a (financially) successful nostrum, take one pious but ignorant man who has dabbled in many things and who talks glibly of all, no money but unlimited nerve, a mixture of any ridiculous stuff, a pinch of mystery, and a plentiful supply of quackery. Put on to boil in a religious weekly, stir slowly with a sensational display advertisement, season heavily and *ad nauseam* with piety and cant of the celebrated Chadband variety and serve hot to an ignorant and gullible public on a Sunday School lesson leaf.

Correspondence

Preparations of Dios Chemical Company Not Approved.

BOWLING GREEN, KY., Feb. 9, 1907.

To the Editor:—As secretary of the Warren County Medical Society I am instructed to ask you about the preparations made by the Dios Chemical Company: Neurosine, Dioviburnia, etc. A very nice young physician, who is well-known here, is traveling for the house, and, when he was in Bowling Green, stated to our physicians that he was instructed that all of their preparations had been approved by the Council on Pharmacy and Chemistry. As I do not find any of these preparations on the list furnished by the Council, I ask you for information on the subject, as our society has resolved to use only pharmaceuticals which have been approved by the Council.

L. H. SOUTH.

[ANSWER.—None of the Dios Chemical Company's preparations has been approved by the Council on Pharmacy and Chemistry. About a year ago this firm sent out a circular to the effect that its preparations had been approved, but when its attention was called to it, it agreed to withdraw the circular. Evidently, however, it is trying to convey, in a different way, the impression that its products have been approved by the Council on Pharmacy and Chemistry. Those who are with us in this fight for sane medication in this country, and who are willing to back up the work by refusing to prescribe anything that has not been accepted by the Council, will find a list of the accepted articles in the advertising pages of the first issue of THE JOURNAL each month.—ED.]

Superstition in Teratology.

DALLAS, TEX., Jan. 30, 1907.

To the Editor:—The article of Dr. E. T. Shelly, published in THE JOURNAL, January 26, contained many convincing arguments and the author's views will undoubtedly be endorsed by every progressive physician. I do not wish to take issue with him, on the views expressed by him, in regard to the subject of contiguity and continuity of mother and fetus, although he seems to have overlooked the unquestioned factor of heredity, but I wish to relate one interesting case in connection with this subject. A man had one child born by his first wife, with a pes equino varus. He married again, his second wife became pregnant, and although there was no other case of malformation in her husband's or her own family, she was constantly worried about the possibility of having a deformed baby. She gave birth to an otherwise perfectly healthy child, but with a double club-foot. Of course we agree on this deformity being due to faulty development, but the coincidence is certainly striking.

EMILE ARONSON, M.D.

The Relation of Abortion to Cancer of the Uterus.

NORTH PLATTE, NEB., Jan. 31, 1907.

To the Editor:—In looking over several articles on cancer of the uterus recently published in THE JOURNAL I find, that in giving the causes of uterine cancer, two things were not considered, which I believe to be either predisposing or exciting causes of this disease. I refer to self-induced abortions and miscarriages and to office treatments. My purpose is simply to call attention to two things which I think play an important part in the etiology of uterine cancer. It can be understood how the trauma incident to an abortion self induced, with a crochet hook, pencil or some such instrument, could furnish the necessary conditions for the starting point of cancer. I think it would have a wholesome effect on the minds of some of our female patients if the fact became generally known to the laity that an abortion may result in cancer. In regard to the other cause I have suggested, a thorough understanding of it would have, no doubt, a wholesome effect on many of our own profession who inflict "treatments" on innocent women for months and even years. The most common place for cancer is the cervix. Therefore it must be the most susceptible to the causes which produce cancer. We know that irritation is an exciting cause of cancer. Why then irritate a uterus every day or every few days for a month or a year with chemicals and foreign substances?

D. T. QUIGLEY, M.D.

The Medical Profession in Denmark.

COPENHAGEN, DENMARK, Jan. 23, 1907.

To the Editor:—I have thought it might be of interest to send a word to THE JOURNAL from Copenhagen, as most American physicians who go to Europe seek some of the larger European cities for study and clinical observation, and only touch Copenhagen for a few hours to see the Finsen Light Institute.

In THE JOURNAL, April 12, 1902, I contributed an article on "Finsen's Phototherapy." I can say now from personal observation, that splendid results are obtained at the Finsen Institute with concentrated, cooled electric light. I have been especially impressed with the frequency of lupus vulgaris of the mucous surfaces of the nose, the hard palate and the pharynx. In treating these cases the same lamps are used as in the treatment of lupus of the skin, except that the light is passed through a reflector to the affected area. To Americans this seems a tedious form of treatment. As the compressing apparatus is held tightly on the affected area and each application lasts for an hour and fifteen minutes daily, the treatment is also painful. But the Danes are proud of Finsen's methods and consider it the safest and best way of treating this disease. Copenhagen has many splendid clinics beside the Finsen Institute, but it is difficult for the stranger to find them. Take, for example, the clinic at the Royal Frederiks Hospital of Prof. Thorkild Rovsing, than whom there is in Europe no better surgeon on the genitourinary organs. The general public hospital, "Kommunehospitalet," is a splendid place for Americans to visit when in Copenhagen. It may be of interest to know that the Germans, who themselves are great masters of system, go to Copenhagen in great numbers. An individuality marks the work of the Danes which I fail to find in other large cities of Europe. There are but few medical books published in Denmark, but those few are well worth reading. To the student of pediatrics who is able to read Scandinavian, I can recommend the "Paediatriske Forelaesninger og Studier" of S. Monrad.

At the clinics in Copenhagen they look down on American physicians as men who practice medicine more for the money there is in it than for the purpose of investigating disease

and developing exact methods of eradicating it. This prejudice, however, is not found in the younger men, many of whom have visited America. P. C. CLEMENSEN, M.D.

One Standard of Medical Licensure Asked in New York.

60 E. 77th St., NEW YORK, FEB. 8, 1907.

To the Editor:—Year after year the medical profession of New York has been called on to oppose the passage of laws creating state examining boards in osteopathy, dermapathy, optometry and so on. Year after year we have succeeded in convincing the legislature that the passage of such laws would be unwise, but, in answer to the inquiries of senators and assemblymen, "What are you going to do with these people who besiege us each year?" we have answered, "Let them comply with the present law and then practice any method they choose." Then has come the second pertinent query, "The homeopaths have a separate board, why should not the osteopaths be granted the same privilege if they will comply with all the requirements excepting treatment?"

As the result of all this a bill has been drawn up, which is endorsed by the State Department of Education, and many leading members of the legislature, accurately defining the practice of medicine and providing for a single examining board, before which all who desire to practice the healing art must come and pass a common examination, eliminating the subject of practice, assuming that all who have the other necessary qualifications will be able to practice intelligently the method which seems to be indicated in the cases they meet.

It is not expected that the enactment of this law is going to bring about an immediate leveling of all the barriers now existing between "allopathic," homeopathic and other "pathic" physicians, although, doubtless, that will be the ultimate result. Nor will it prevent the demands in the future of peculiar classes desiring separate recognition for commercial and other reasons. It will, however, place the legislature in a position to say when future efforts to secure class legislation along medical lines are made, that the State of New York recognizes only the ordinary educated physician, and the method of practice is something the individual physician must determine for himself. It will place medical practice on a higher plane than has heretofore been accorded it, and will accomplish what our present law was designed for, and has failed to do, namely, properly protect the people of the State of New York from incompetent physicians.

Will you please request your New York readers to write their representatives in the legislature at once, urging the defeat of osteopathy, optometry and all similar bills, and the passage of the single board bill, which is Senate Bill No. 154, Assembly Bill No. 160, and to use these numbers when writing.

FRANK VAN FLEET, M.D.

Chairman, Committee on Legislation of the Medical Society of the County of New York.

A Protest Against Compulsory Publicity.

ROCHESTER, MINN., Feb. 10, 1907.

To the Editor:—We have lately suffered an unwarranted intrusion into our private affairs, through the publication in certain newspapers of a sensational article furnished by a "Sunday Supplement" syndicate. Up to the present we have succeeded in checking several such publications. We are now taking legal steps to determine what redress if any, may be had, and to what extent not only ourselves, but the medical profession as a whole, can be protected against such outrages on common decency.

W. J. and C. H. MAYO.

Association News

Special Rates for the Atlantic City Session.

According to advices, one first-class fare plus $1.00 for the round-trip, going and returning by the same routes, will prevail from points more than 100 miles from Atlantic City. Tickets will be on sale June 1 to 4, inclusive, returning leaving Atlantic City June 4 to 10, inclusive. A special validating agency is also promised, so it is to be hoped that there will be little trouble in this regard.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish name or address will be faithfully observed.

NEPHRITIS COMPLICATING EXOPHTHALMIC GOITER.

NEW YORK, Jan. 28, 1907.

To the Editor:—Please inform me whether Bright's disease complicates exophthalmic goiter and what influence nephritis would have on this condition. CHARLES F. D'A. FRANCIS.

ANSWER.—Nephritis is not recognized as a common complication of exophthalmic goiter; several authors do not even mention albuminuria as a symptom. Others do so but no emphasis is placed on it. Thus Tyson (Practice of Medicine, 3d edition, 1903, p. 675), says "Intermittent albuminuria is frequent, as pointed out by Dr. Begbie;" Moebius, in Nothnagel's System, refers to albuminuria as being occasionally present. Slight toxemic degeneration of the renal epithelium in long-continued or severe cases may explain such albuminuria. Of course, exophthalmic goiter may appear in one who has a genuine nephritis, the association of the two conditions being purely accidental. Such a case is reported by Elliot (THE JOURNAL, June 17, 1905, p. 1897), in which exophthalmic goiter was complicated both by glycosuria and by a true nephritic albuminuria with albuminuric retinitis. In regard to the association of Bright's disease with exophthalmic goiter he says: "No direct association exists between exophthalmic goiter and nephritis, although transient albuminuria has been noted during the periods of acute disturbance. Chronic Bright's disease is not numbered among the epiphenomena of exophthalmic goiter." Lastly, in exophthalmic goiter there may develop a period of cardiac incompetency from myocardial weakness. When this occurs dilatation of the heart with passive congestion of the liver and kidney, edema of the lower extremities, etc., may be present. Such a renal congestion might be accompanied by a not inconsiderable trace of albumin in the urine, and even by a few casts.

THE LENGTH OF HYPODERMIC NEEDLES.

MAHANOY CITY, PA., Jan. 22, 1907.

To the Editor:—I would like to have your opinion why the present hypodermic needles are made an inch to an inch and a half long. My idea is that a needle half an inch long has the advantage that it is not so likely to puncture a superficial vein, and that it will be almost impossible to reach an artery or nerve. The same physiologic action will result from either length.

G. W. REESE, M.D.

ANSWER.—While the average length of the needles generally sold with hypodermic syringes may be longer than is necessary, our correspondent is in error in assuming that they measure from an inch to an inch and a half in length. The better class of manufacturers are sending out syringes equipped with needles from three-quarters to one inch in length. These lengths have been adopted because of a general demand for these sizes. Those who prefer needles of shorter length can obtain them by specifying the length they want. Modern surgical instrument catalogues illustrate needles as short as one-quarter of an inch. Our opinion is that needles of one-half to five-eighths of an inch in length are preferable to those of standard length.

RULES FOR FIRST AID TO THE INJURED.

WARRIOR, ALA., Jan. 28, 1907.

To the Editor:—Where can I obtain a formula of rules for the care of the injured around mines and brickyards—rules to be posted around the above-named places and used to instruct in first-aid to the injured? J. G. VANCE, M.D.

THE RUSSO "REACTION."

DENVER, Jan. 31, 1907.

To the Editor:—Will you tell me where I can get information regarding Russo's reaction of methylene blue in urine? I am desirous of learning something of its nature. In the abstract in THE JOURNAL it states that the reaction "occurs as an ordinary physical" phenomenon in any urine.

ANSWER.—The reaction referred to was proposed by Russo (*Riforma Medica*, May 13, 1905), and consists in adding to 4 or 5 c.c. (one dram) of urine 4 drops of a solution of methylene blue. In typhoid patients he found that the urine became a light green in the first stage, an emerald green at the height of the disease and gradually assumed a bluish green to blue color during the stage of decline and convalescence. Russo believed that the color depended on toxins present in the urine and might be made of diagnostic value. It was possible by simple experiments for E. Cousin and S. Costa (*Presse Medicale*, March 14, 1906), and also Ch. Gandy (*Presse Medicale*, March 21, 1906), to prove, what might have been suspected beforehand, that the green color was due to the mixture of the blue liquid with the yellow urine. Every-

one is familiar with the fact that a mixture of pigment blue with yellow produces green. The varying shades of color observed by Russo are due to the varying concentration of the urine at the different stages of the disease. Cousin and Costa found that diluting the urine restored the blue color and that the green tint could be produced by placing a test-tube containing the methylene blue solution in a beaker containing urine of a deep yellow color with out mixing the liquids at all. Gandy decolorized typhoid urine which gave the reaction and found that after the color was removed the urine gave a blue color instead of the green previously obtained. The reaction is, therefore, a mere physical phenomenon depending on the color of the urine and not on any chemical change and is devoid of any diagnostic value.

BEST CLIMATES FOR HAY FEVER.

CINCINNATI, Feb. 6, 1907.

To the Editor:—Can you inform me whether there are any districts in the United States which are entirely free from hay fever? G. A. HINNEN.

ANSWER.—We published a reply to a question covering the same ground in THE JOURNAL, Aug. 11, 1906, page 457.

"LAXINE."

TOLEDO, OHIO, Feb. 1, 1907.

To the Editor:—The Columbus Pharmacal Company makes a product for sale to physicians which they call "Laxine." The label states that this is a synthetical laxative, the chemical name of which is Di-hydroxy benzo-methy-quino-lactone. This sounds well, but I can find no one in this city who can tell me what it means. Will you please tell me what this chemical is in plain every-day English? A number of local physicians are interested and will be grateful for the information. GEORGE H. JONES.

ANSWER.—This is probably phenolphthalein. For a discussion of this subject see THE JOURNAL, Jan. 5, 1907, p. 64, "Method of Introducing New Preparations," and also p. 70. As phenolphthalein is a comparatively new preparation it is being introduced under other names—purgen, for example, and it will not be surprising if it becomes the chief ingredient of some new proprietaries. It can be bought of any wholesale chemist at from 35 to 50 cents an ounce.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, for the week ending Feb. 9, 1907:

Vedder, Edward B., asst.-surgeon, relieved from duty in the Philippines Division, and will proceed to the United States, and on arrival report by telegraph to the military secretary of the Army for further orders.

Williams, Allie W., asst.-surgeon, advanced to rank of captain from Feb. 4, 1907.

Fife, James D., asst.-surgeon, ordered to proceed from Fort Slocum, N. Y., to Jefferson Barracks, Mo., for temporary duty, and on completion thereof will return to his proper station.

Nelson, Kent, asst.-surgeon, ordered to proceed from Fort McHenry, Md., to Fort Slocum, N. Y., for temporary duty. On the return of Asst.-Surgeon Fife, U. S. Army, to Fort Slocum, Captain Nelson, asst.-surgeon, will rejoin his proper station.

Stephenson, William, surgeon, ordered to report to commanding officer, Troop K, Fourteenth Cavalry, Presidio of San Francisco, to accompany said troop to Boise Barracks, Idaho. On completion of this duty to return to his station, the Presidio of San Francisco.

Bradley, A. E., surgeon, relieved from duty at Fort Sheridan, Ill., and ordered to report in person to the military secretary of the Army in this city for instructions, and will then proceed to Fort Slocum, N. Y., for purpose of investigating certain methods relating to the examination of recruits, and thence to Jefferson Barracks, Mo., for station and duty.

Woodall, William P., asst.-surgeon, relieved from duty at Fort Clark, Wash., and ordered to Fort Logan, Colo., for duty.

Lambert, Samuel E., asst.-surgeon, relieved from duty at Fort Wright, Wash., and ordered to Fort Logan, Colo., for duty.

Bell, Richard P., contract surgeon, relieved from duty at Fort Monroe, Va., and ordered to duty at Fort Wadsworth, N. Y.

Felts, Ribert L., contract surgeon, ordered to Savannah, Ga., for annulment of contract and granted leave of absence for twenty days.

Shellenberger, James E., contract surgeon, died Feb. 4th at Christ Hospital, Cincinnati.

Wolven, F. Homer, dental surgeon, left Fort Monroe, Va., and arrived at Fort Hamilton, N. Y., for duty.

Slayter, John T. H., contract surgeon, returned to Fort William Henry Harrison, Mont., from temporary duty at Fort Lincoln, N. Dak.

Navy Changes.

Changes in the Medical Corps U. S. Navy, for the week ending Feb. 9, 1907:

Bacon, Sankey, acting asst.-surgeon, appointed acting asst.-surgeon from Feb. 1, 1907.

Lumsden, G. P., medical inspector, detached from Naval Rendezvous, Dallas, Texas, and ordered home to wait orders.

Stibbens, F. H., asst.-surgeon, ordered to the Naval Training Station, San Francisco.

Ruge, O. G., pharmacist, ordered to the Naval Medical School, Washington, D. C.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ended Jan. 6, 1907:

Kerr, J. W., asst.- surgeon-general, granted leave of absence for two days from Jan. 31.

Stoner, G. W., surgeon, directed to report in Washington, D. C., for special temporary duty, on completion of which to rejoin station.

Williams, L. L., surgeon, granted leave of absence for one day, February 6, under Paragraph 189 of the Service Regulations.

Stimpson, W. G., surgeon, granted three days' leave of absence as requested.

Cofer, L. E., P. A. surgeon, granted leave of absence for twenty-two days, from February 4.

Clark, Taliaferro, P. A. surgeon, directed to report in Washington, D. C., for special temporary duty, on completion of which to rejoin station.

Heiser, V. G., P. A. surgeon, reassigned as chief quarantine officer, Philippine Islands, to take effect July 17, 1906.

Gwyn, M. K., P. A. surgeon, two days' leave of absence granted from January 17, revoked.

Schereschewsky, J. W., P. A. surgeon, directed to report in Washington, D. C., for special temporary duty, on completion of which to rejoin station.

Boggess, J. S., P. A. surgeon, temporarily relieved at Stapleton, N. Y., and directed to proceed to Perth Amboy, N. J., and assume temporary charge of the service.

de Valin, Hugh, asst.-surgeon, granted leave of absence for two days, from Jan. 22, 1907.

Keatley, H. W., acting asst.-surgeon, granted leave of absence for four days, from Jan. 26, 1907, under Paragraph 210.

Safford, M. V., acting asst.-surgeon, directed to report in Washington, D. C., for special temporary duty, on completion of which to rejoin station.

Stevenson, J. W., acting asst.-surgeon, granted leave of absence, without pay, for two months, or so much thereof as may be necessary, beginning Feb. 18, 1907.

Wilson, R., acting asst.-surgeon, granted leave of absence for thirty days, from February 14.

Troxler, R. F., pharmacist, granted leave of absence for six days, from February 4.

Morris, G. A., pharmacist, granted leave of absence for fifteen days, from February 6.

Thomas, A. M., pharmacist, leave of absence for thirty days amended to be effective January 23, instead of January 20.

BOARDS CONVENED.

A board of officers was convened to meet at Portland, Me., on February 5 for the purpose of making a medical examination of an alien. Detail for the board: Surgeon P. C. Kalloch, chairman; Surgeon W. P. McIntosh; Acting Asst.-Surgeon M. V. Safford, recorder.

A board of officers was convened to meet at Port Townsend, Wash., for the purpose of making a physical examination of Pharmacist G. C. Allen to determine his fitness to promotion to the grade of pharmacist of the first class. Detail for the board: Surgeon W. G. Stimpson, chairman; P. A. Surgeon J. H. Oakley, recorder.

A board of officers was convened to meet at Stapleton, N. Y., for the purpose of making a physical examination of Pharmacist Edward Rogers to determine his fitness for promotion to the grade of pharmacist of the first class. Detail for the board: Surgeon, P. H. Bailhache, chairman; P. A. surgeon H. W. Wickes, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended February 8, 1907:

SMALLPOX—UNITED STATES.

Georgia: Augusta, Jan. 22-29, 3 cases.
Indiana: Indianapolis, Jan. 20-27, 13 cases, 2 deaths.
Michigan: Detroit, Jan. 26-Feb. 2, 6 cases.
Mississippi: Natchez, Jan. 19-26, 3 cases.
Missouri: St. Joseph, Jan. 19-26, 12 cases.
Ohio: Cincinnati, Jan. 25-Feb. 1, 1 case.
Washington: Spokane, Jan. 12-19, 14 cases (imported).

SMALLPOX—FOREIGN.

Canada: Cape Breton: Sydney, Jan. 26, present; Kent County, present; Nova Scotia: Colchester County, present; Cumberland County, present; Pictou County, epidemic.
Chile: Antofagasta, Jan. 6, 4 cases, 2 deaths; Coquimbo, 16 cases, 1 death; Iquique, Jan. 6, present.
Cuba: Habana, Jan. 30, 1 case.
Ecuador: Guayaquil, Dec. 1-31, 27 deaths.
France: Paris, Jan. 5-12, 11 cases.
Gibraltar: Jan. 13-20, 1 case (imported).
Great Britain: Cardiff, Jan. 12-19, 3 cases; Liverpool, 5 cases.
Malta: Dec. 29-Jan. 5, 1 case.
Mexico: City of Mexico, Dec. 9-15, 12 deaths.
Netherlands: Rotterdam, Jan. 12-19, 8 cases, 1 death.
Peru: Lima, Dec. 1-31, 9 cases.
Russia: Moscow, Dec. 29-Jan. 5, 1 death; Odessa, Jan. 5-12, 10 cases, 1 death.
Spain: Barcelona, Jan. 10-20, 7 deaths.

YELLOW FEVER.

Ecuador: Guayaquil, Dec. 1-31, 17 deaths.

CHOLERA—INSULAR.

Philippine Islands: Provinces, Dec. 8-15, 29 cases, 22 deaths.

PLAGUE.

Chile: Antofagasta, Jan. 6, 3 cases, 1 death.
China: Niuchwang, Jan. 28, present.
Peru: Callao Dec. 31-Jan. 5, 2 cases, 1 death; Catacaos Dec. 19, 2 cases, 2 deaths; Chiclayo, 1 case, 1 death; Mollendo, 9 cases, 3 deaths; Paita, city and vicinity, Dec. 19, 7 cases, 2 deaths; San Pedro, 11 cases, 2 deaths; Trujillo, 17 cases, 3 deaths.

Marriages

CHARLES E. IDE, M.D., to Miss Margaret Davis, both of Redlands, Cal., February 9.

JAMES EDWIN BALL, M.D., to Miss Edith Wall, both of Millville, Mo., January 30.

EUGENE WAHL, M.D., to Miss Mae Bradley, both of Edwardsville, Ill., January 30.

EDWARD T. DILLON, M.D., to Miss Laura Doran, both of Los Angeles, Cal., January 29.

PAUL ESNARD BECHET, M.D., to Miss Lucile Ducournau, both of Natchitoches, La., January 9.

BENJAMIN FOSSE, M.D., to Miss Ethel Winifred Bennett, both of Beloit, Wis., January 16.

WILLIAM T. NEWMAN, M.D., to Miss Elve Dolhonde, both of Independence, La., January 16.

THOMAS STEPHEN GREENE, M.D., to Miss Georgia Xaviere Schultz, both of Chicago, February 6.

CHARLES E. SMOOT, M.D., to Miss Elsie Moore, both of Pemberton, Ohio, at Covington, Ky., recently.

H. DENELL WILLIAMS, M.D., to Miss Adeline Diana Cereghino, both of San Francisco, January 23.

EDMUND WORRELL CARTER, M.D., Prattsburg, Ga., to Miss Christine Kelly, Augusta, Ga., January 23.

CHAUNCEY MAY POND, M.D., Groveland, Cal., to Miss Josephine Kebby, at Alameda, Cal., February 6.

W. W. MCDONNELL, M.D., to Miss Vida Lester, both of Macon, Ga., at St. Augustine, Fla., January 16.

ROBERT ORMISTON BROCKWAY, M.D., Brooklyn, N. Y., to Miss Florence Stiasny of New York City, January 30.

Deaths

R. Harvey Reed, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1876; a member of the American Medical Association and the Association of Military Surgeons of the United States; formerly president of the Wyoming State Medical Society and of the Rocky Mountain Interstate Medical Association; surgeon general of Wyoming; professor emeritus of principles and practice of surgery and clinical surgery in Ohio Medical University, Columbus; formerly editor of the *Columbus Medical Journal;* division surgeon of the Union Pacific Railway, with headquarters at Rock Springs, Wyo., and surgeon of the Union Pacific Coal Company, who had suffered for a long while from the effects of septicemia and had gone to Southern California for his health, committed suicide at the Hotel Lankershim, Los Angeles, January 30, by gunshot wound of the head, aged 56. His body was cremated at Evergreen Cemetery.

Claiborne J. Walton, M.D. University of Louisville, Medical Department, 1853; first representative to the Kentucky legislature from Hart County in 1850; state senator in 1855 and 1859, resigning to enter the Federal Army, where he served throughout the Civil War as surgeon of the Twenty-first Kentucky Volunteer Infantry; after the war a member of the state senate in 1873, 1881 and 1895, and a member of the legislature in 1899; in 1890 appointed United States pension agent at Louisville, died at his home in Munfordville, from cerebral hemorrhage, February 1, after an illness of six weeks, aged 83.

Francis L. Stone, M.D. Bellevue Hospital Medical College, 1865; one of the oldest practitioners of Genesee County, N. Y., and coroner of the county; at one time president of the county medical society for several years, and a member of the State Medical Association and of the New York State Association of Railway Surgeons, and local surgeon for the Buffalo, Rochester & Pittsburg Railroad; town clerk of Stafford for several years, died at his home in Leroy, January 22, from influenza, after an illness of four weeks, aged 72.

Johnson Van Dyke Middleton, M.D., who entered the medical department of the Army as lieutenant and assistant surgeon in 1861, was made captain in 1866, major in 1876, lieutenant colonel in 1893, and served as medical supply officer at San Francisco during the Spanish-American War, was retired in 1898 and attained the rank of colonel retired in 1904; who was brevetted captain and major for services during the Civil War, died at his home in Washington, D. C., January 30, aged 72.

William Denny, M.D. Miami Medical College, Cincinnati 1879; a member of the American Medical Association; one of the founders of the Washington (Pa.) Hospital; a member of the board of managers of the State Reform School, Morganza; treasurer of the Washington school board and Washington County jail physician, died at his home in Washington, February 1, from cerebral hemorrhage, after an illness of five days, aged 52.

James Alexander Finley, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1872; who entered the United States Army as lieutenant and assistant surgeon in 1874, promoted to captain and assistant surgeon in 1879, and was retired in 1893, and afterward lived in Haverford, Pa., died at Bryn Mawr (Pa.) Hospital, after an operation for aneurism, January 23, aged 57.

William Wesley Davis, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1871; one of the oldest physicians of Davis County, Iowa; a member of the Des Moines Valley Medical Society and Davis County Medical Society; while despondent on account of ill health, took carbolic acid and died a few minutes later, at his home in Floris, Iowa, January 25, aged 72.

Henry William Haslit, M.D. Illinois State Board of Health, 1879; Missouri Medical College, St. Louis, 1888; of Grandview, Ill.; a member of the state and county medical societies and the Æsculapian Medical Society of the Wabash Valley, died at the Union Hospital, Terre Haute, Ind., January 22, from injuries received in a railway accident 56 hours before, aged 58.

William F. Ard, M.D. University of Maryland School of Medicine, Baltimore, 1891; formerly house surgeon at the Woman's Hospital in the State of New York, and later attending physician at the City Hospital, Binghamton, N. Y.; a practitioner of Westchester, N. Y., died in New York City, January 24, after an illness of more than two years, aged 40.

Ludwig Hubert Junghanns, M.D. University of Freiburg, Germany, 1856; staff surgeon to General Fremont during the Civil War; from 1870 to 1880 in the service of the Japanese government as medical officer, and thereafter a resident of Poughkeepsie, N. Y., died at Vassar Hospital in that city, January 26, from cancer of the stomach, aged 72.

Augustus L. Justice, M.D. Northwestern University Medical School, Chicago, 1875; a member of the American Medical Association; surgeon in the Confederate army during the Civil War; until two years ago state quarantine officer at El Paso, Tex., died at his home in El Paso, January 30, from nephritis, after a short illness, aged 66.

William Drechsler, M.D. Washington University, Medical Department, St. Louis, 1853; surgeon of the Fifth Missouri Volunteer Infantry during the Civil War; for two terms a member of the St. Louis Board of Education, died at his home in St. Louis, February 1, from cerebral hemorrhage, after an illness of 16 days, aged 77.

Abram J. Williams, M.D. University of Maryland School of Medicine, Baltimore, 1872; a member of the house of delegates from Calvert County, Md., in 1898; afterward county health officer and more recently vaccine physician for the second district, died at his home in Barstow, near Prince Fredericktown, January 24, aged 58.

George Wentworth Newton, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1884; for several years a director and treasurer of the Chicago West Side Hospital, and associate professor of gynecology in the College of Physicians and Surgeons, died at his home, February 9, from pneumonia, aged 46.

George H. Thoma, M.D. Albany (N. Y.) Medical College, 1864; a member of the American Medical Association, and one of the leading physicians of Nevada; a veteran of the Civil War, died at his home in Reno, January 31, from meningitis, following a light attack of influenza, after a short illness, aged 54.

Edwin Theodore Parker, M.D. Tulane University of Louisiana, Medical Department, New Orleans, 1891; a member of the American Medical Association, and one of the best-known physicians of southern Alabama, died at his home in Brewton, from heart disease, January 22, after an illness of two weeks, aged 41.

Edwin R. Lewis, M.D. Harvard University Medical School, Boston, 1867; a veteran of the Civil War; for many years a practitioner of Indianapolis, and thereafter an examiner in the United States pension bureau, Washington, D. C., died in Madison, Ind., after an illness of six months, January 31, aged 67.

Richard P. Comfort, M.D. Columbus (Ohio) Medical College, 1882; a member of the Michigan State Medical Society, and

for 30 years a practitioner of that state, died at his home in Nashville, January 27, from septicemia, due to an operation wound, after an illness of several months, aged 58.

William H. H. Miller, M.D. Pennsylvania Medical College, Philadelphia, 1849; for many years a prominent member of the Lycoming County (Pa.) Medical Society, and for nearly half a century a practitioner of Williamsport, died in that city, February 1, from nephritis, aged 81.

Theodore Van Lear Davis, M.D. Jefferson Medical College, Philadelphia, 1856; for seven years assistant physician at the Western State Hospital for the Insane, Staunton, Va., died at his home in Greenville, Va., Nov. 9, 1906, from senile debility, after an illness of three years, aged 77.

Levi **S. Campbell, M.D.** University of Louisville, Medical Department, 1855; formerly a practitioner of Indianapolis, but for the last five years a resident of Los Angeles, Cal., died at the home of his son in that city, January 31, from influenza, after an illness of six weeks, aged 84.

David **A. Collins, M.D.** Medical School of Harvard University, Boston, 1886; assistant surgeon of the Ninth Regiment, M. V. M., for several years, and physician for the Eliot school district for three years, died at his home in Roxbury, Boston, February 5, after a lingering illness, aged 44.

Benjamin Frantz, M.D. Jefferson Medical College, Philadelphia, 1846; dean of the medical profession of Franklin County, Pa., where he had practiced for more than 60 years, died at his home in Waynesboro, February 1, from angina pectoris, after a short illness, aged 82.

Christian Rohr Johns, M.D. Jefferson Medical College, Philadelphia, 1890; for several years general secretary and physical director of the Hazleton (Pa.) Y. M. C. A., died at his home in Hazleton, January 30, from hypertrophy of the liver, after a long illness, aged 43.

E. Scott Pigford, M.D. Hahnemann Medical College and Hospital, Chicago, 1880; for 20 years a practitioner of Wilmington, N. C., died at the James Walker Memorial Hospital in that city, January 23, from cerebral hemorrhage, after a short illness, aged 63.

Augustus A. Moloney, M.D. College of Physicians and Surgeons in the City of New York, 1869; a member of the state and county medical societies, died suddenly at his home in New York City, from heart disease, January 31, after a short illness, aged 59.

Edmund C. Rickerts, M.D. College of Physicians and Surgeons in the City of New York, 1885; superintendent of the Tweedie Trading Company, died at his home in Brooklyn, January 9, from pneumonia, after an illness of eight days, aged 55.

Augustus Frank Bauer, M.D. Miami Medical College, Cincinnati, 1891; died at his home in Chicago, February 4, from pneumonia, said to have been due to exposure and overwork in connection with the present epidemic of contagious diseases, aged 39.

Thomas J. Gray, M.D. Hering Medical College, Chicago, 1893; of Berkeley, Cal.; formerly president of the St. Cloud (Minn.) Normal School and Greeley (Colo.) Normal School, died at Tonopah, Nev., January 20, from typhoid fever, after a short illness.

Herman J. Abel, M.D. University of Buffalo, Medical Department, 1895; a member of the Medical Society of the State of New York, died at his home in Honeoye, N. Y., January 30, from tuberculosis, after an illness of seven months, aged 36.

Robert W. Hansen, M.D. Columbus (Ohio) Medical College, 1886; of Haigler, Neb., died on a train en route to Denver, where he was being taken to have an operation performed for skull fracture, due to an unexplained accident, January 29.

George W. Clower, M.D. Southern Medical College, Atlanta Ga., 1882; for two years representative in the legislature from Coweta County, Georgia, died at his home in Grantville, January 26, from cerebral hemorrhage, after a short illness.

Hugh Douglas McLean, M.D. Jefferson Medical College, Philadelphia, 1854; surgeon of the One Hundred and Sixth Pennsylvania Volunteer Infantry throughout the Civil War, died at his home in Philadelphia, February 3, aged 77.

W. A. Jemison, M.D. University of Louisville, Medical Department, 1876; of Carrollton, Ky.; a veteran of the Civil War, died at the home of his son-in-law in that city, February 2, from pneumonia, after a short illness, aged 65.

John W. Mason, M.D. Missouri Medical College, St. Louis, 1899; of Brookfield, Mo., and formerly coroner of Linn County, died at the home of a patient, from the effects of a self-inflicted gunshot wound, February 1, aged 40.

John C. Beck, M.D. Rush Medical College, Chicago, 1900; assistant in surgery at the Chicago Policlinic, died at his home in Chicago, February 7, from tuberculosis of the throat, after an illness of three months, aged 38.

Alexander G. Barnhill, M.D. St. Louis College of Physicians and Surgeons, 1893; surgeon for the Minera (Texas) Coal Company, died at Minera from the effects of an accidental gunshot wound, January 26, aged 39.

Elsner Christian Gunther, M.D. Harvard University Medical School, Boston, 1892; of New York City, died at the hospital of Dr. William T. Bull, New York City, January 31, after an illness of several months, aged 42.

Oliver M. Sheridan, M.D. New York University Medical College, 1886; a practitioner of Roxbury, Boston, for more than 15 years; a member of the Massachusetts Medical Society, died at his home, January 29, aged 43.

S. H. Smith, M.D. Philadelphia College of Medicine and Surgery, 1841; for more than 40 years a resident of Nichols, Iowa, died at his home, January 28, from cerebral hemorrhage, after an illness of a few hours, aged 87.

Amecy Beason Seward, M.D. Cincinnati; a pioneer physician of Tipton County, Ind., died at the home of his daughter in Laurel, Ind., Dec. 26, 1906, from cancer of the stomach, after an illness of one year, aged 73.

Marvin W. Thatcher, M.D. Long Island College Hospital, Brooklyn, N. Y., 1865; for many years a practitioner of Branch County, Mich., died at his home in Coldwater, January 31, after a short illness, aged 74.

Theodore Herman Seyfert, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1867; died at his home in Philadelphia, January 27, from nervous disease, after a long illness.

Frederick Weller Jones, M.D. Rush Medical College, Chicago, 1886; of Appleton, Wis., died at St. Elizabeth's Hospital in that city, January 29, from pneumonia, after an illness of ten days, aged 45.

Everett H. Merwin, M.D. Chicago Homeopathic Medical College, 1893; treasurer of the Kansas City Homeopathic Medical College, was shot and killed in his office in Kansas City, January 9, aged 39.

Alfred S. Alford, M.D. Memphis Hospital Medical College, Memphis, Tenn., 1882; a retired practitioner of Leander, Tex., and a Confederate veteran, died suddenly at his home, January 21, aged 65.

Horace F. Trueman, M.D. Miami Medical College, Cincinnati, 1882; a well-known physician of Toledo, died at his home in that city, January 31, from heart disease, after an illness of three days.

Josiah P. Sugg, M.D. College of Physicians and Surgeons in the City of New York, 1867; of Kittrell, N. C.; a Confederate veteran, died in Pittman Hospital, Tarboro, N. C., January 25, aged 65.

Jefferson G. Martin, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1873; died at his home in Kahoka, Mo., January 31, from tuberculosis, after a lingering illness, aged 60.

James H. Miles, M.D. University of Maryland School of Medicine, Baltimore, 1845; a school commissioner of St. Mary's County, Md., died at his home in St. Inigoes, January 28, aged 84.

William N. Sullivan, M.D. Cooper Medical College, San Francisco, 1892; for several years a surgeon in the United States Navy, died at his home in San Francisco, January 31, aged 34.

Edward M. P. Ludlam, M.D. Hahnemann Medical College and Hospital, Chicago, 1861; died at his home in Chicago, from erysipelas, after an illness of one week, February 9, aged 67.

Thomas Osborne Butler, M.D. Chicago Homeopathic Medical College, 1881; died at his home in Chicago, January 26, from nephritis, after an illness of three months, aged 50.

Darwin Cyrus Doolittle (Years of Practice, Illinois), 1877; died at his home in Woodstock, Ill., from cerebral hemorrhage, January 29, after an illness of two days, aged 82.

Robert T. Wood, M.D. Medical College of Ohio, Cincinnati, 1878; a member of the state and county medical societies, died suddenly at his home in Paris, Ky., January 26.

William B. Vick, M.D. Indiana Eclectic Medical College, Indianapolis, 1881, died at his home in Green Hill, Ind., January 31, aged 78, after an illness of several months.

L. C. Bell, M.D. Eclectic Medical Institute, Cincinnati, 1888; died at his home in Hamilton, Ohio, January 30, from nephritis, after an illness of several weeks, aged 43.

John Stout, M.D. Chicago Medical College, 1879; formerly physician of Peoria County, Ill., died at his home in Omaha, January 29, from heart disease, aged 54.

William M. Quarles, M.D. St. Louis Medical College, 1869; a Confederate veteran and a prominent citizen of Richmond, Mo., died suddenly at his home, February 2.

Joseph M. Abbott, M.D. New York Medical College, New York City, 1863; a Confederate veteran, died at his home in Trilby, Fla., January 4, aged 62.

James E. Shellenberger, M.D., contract surgeon United States Army, stationed at Fort Sam Houston, Tex., died at Christ Hospital, Cincinnati, February 4.

Deaths Abroad.

L. Willems, M.D., former president of the Belgian Academy of Medicine and inventor of the vaccine for protection of cattle against pleuro-pneumonia, died recently at Hasselt, Belgium.

A. P. Fokker, M.D., professor of hygiene at Groningen, Holland, died recently as the result of overexertion during the fire that destroyed the university buildings. He used to protest against the exclusive predominance given to bacteriology, and was inclined to believe that the so-called pathogenic microorganisms were products of the cells of the diseased organism, a form of "heterogenesis."

P. Budin, M.D., the well-known professor of clinical obstetrics at Paris, Tarnier's successor, died at Marseilles January 23, aged 60. There is scarcely a branch of obstetrics on which he has not published some work, and he founded the *Obstétrique* in 1895. From simple beginnings, asking the women delivered at the maternity to bring their babies back every week for advice and encouragement, these "infant consultations" have become an established institution in France and are being copied in other lands. Their working has been described in THE JOURNAL. Budin strove indefatigably to have similar "consultations" established at other points, and his trip to Marseilles was for the purpose of delivering an address on the subject, when he succumbed to grippal pneumonia. With Roussel and Strauss he founded in 1902 the "League against Infantile Mortality," and has always been one of the pioneers in the line of the protection of infant life.

Sir Michael Foster, the eminent physiologist, died suddenly, January 29, in London, at the age of 70. He was educated at University College and graduated M.B. at London in 1859. He practiced for a few years as a doctor in his native town of Huntingdon and, taking a great interest in physiology, he devoted all his spare time to research. He was enabled to gratify his taste when he was appointed teacher in physiology in 1867 at University College and subsequently professor. In 1869 he was appointed to the Fullerian professorship of physiology at the Royal Institution, succeeding Huxley. In 1870 he went to Cambridge to teach physiology and was appointed prælector of physiology. In 1883 a chair in physiology was created for him by the university. He took a great share in the development of the Cambridge Biological School and his influence was not confined to the department of physiology, but extended also to the studies of vegetable physiology and morphology. In 1872 he was elected to the Royal Society, and in 1881 he succeeded Huxley, who became president, as one of its secretaries. He held this post until 1905, taking an active part in the multifarious work of the society. In 1900 he was elected member of parliament by the London University. His greatest work was his "Text-Book of Physiology." The beauty of his English was also well displayed in his "Lectures on the History of Physiology," delivered at Cooper Medical College, San Francisco, in 1900. He also wrote "A Life of Claude Bernard," "Elements of Physiology" in conjunction with Dr. J. N. Langley, and "Elements of Embryology" with F. M. Balfour. He edited, with Dr. Ray Lankaster, the "Scientific Memoirs" of Huxley. He founded and edited the *Journal of Physiology*. The deceased was perhaps the greatest British physiolgist of his generation. He was an admirable teacher, both in the lecture room and in the laboratory, and he had the invaluable faculty of arousing the enthusiasm of his pupils. He found Cambridge with a meager equipment for scientific work and raised that university to the high position it holds to-day among schools of scientific research. Like many scientific men, Sir Michael was in private life modest and unassuming. He was never so happy as when at his home near Cambridge, with its broad lawns and spacious gardens. His hobby was horticulture, and he was an enthusiastic gardener.

Society Proceedings

COMING MEETINGS.

Assn. of American Med. Colleges, Richmond, Va., March 18, 1907.
Medical Society of Missouri Valley, Omaha, Neb., March 21-22, 1907.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

One Hundred and First Annual Meeting, held in Albany, Jan. 28-30, 1907.

(*Continued from page 536.*)

Diagnosis and Symptoms of Rheumatoid Diseases.

DR. R. R. FITCH, Rochester, divided these diseases into three classes. 1. Atrophic arthritis, usually known as arthritis. 2. Hypertrophic arthritis, formerly called osteoarthritis. 3. Chronic villous arthritis. In atrophic arthritis the glands are not enlarged and the blood is normal. Roentgen ray negatives are valuable in differentiating this condition from infectious arthritis. Hypertrophic arthritis, like atrophic arthritis, is a slowly progressive disease, but commonly occurs later in life. It first appears in the terminal phalangeal joints, while the atrophic form first involves the proximal row. The enlargement of the joints has not the spindle character of the atrophic form, but is localized definitely near the joint line. Hypertrophic arthritis may occur in any joint in the body, and produces its most disabling results in the hip joint. Hypertrophic arthritis of the spine is not infrequently diagnosed as intercostal neuralgia, renal or hepatic colic. The two conditions most likely to be confused with hypertrophic arthritis of the spine are infectious arthritis and mechanical lesions of the sacro-iliac joints. Chronic villous arthritis is usually a result of previous disease or injury. The increased amount of fluid in a distended joint stretches the membrane, causing it to thicken and take on a villous formation. These villi may go on to fatty or calcareous degeneration. The knee is the commonest location for this form of joint disease. There are no general symptoms, simply a mechanical condition producing swelling with crepitus and varying degrees of pain on motion.

Mechanical Treatment.

DR. H. L. TAYLOR, New York, thought that the medical profession does not fully appreciate the value of mechanic treatment in non-tuberculous affections of the joint because this method of treatment, as ordinarily practiced, is often ineffective. There need be no fear of atrophy and ankylosis. During the active stages of infection pressure and motion may both be injurious. These may be controlled by splints and apparatus with or without crutches, or recumbency, according to indications. Properly applied and timely mechanic control relieve pain, allay irritation, prevent deformity and favor recovery, except in those cases where there is active suppuration and where the original focus of general infection is of primary importance. Vibration, massage, and active, passive or forced movements may be required after irritation has subsided. If deformity remains, it can be remedied by mechanical or surgical means. In infectious arthritis suitable mechanic treatment is the main reliance, and when properly applied it gives perfectly satisfactory results.

Operative Treatment of Acute Suppurative Joints.

DR. WALTER WOOD, Brooklyn, dwelt on the danger of delay in acute suppurative joint infections. The operations indicated fall into two classes, incisions or incisions with removal of bone. In exceptional cases only aspiration with irrigation may be necessary. In reference to the ankle joint, in addition to the two incisions in front on either side, as usually advised, he has removed the astragalus on both sides and has been surprised at the good results obtained. In the knee joint it is not sufficient in the average case to make incisions in the classical way if one hopes to produce a movable joint. Continuous irrigation and additional drainage by a posterior tube through the popliteal space, or long incisions the whole length of the joint just above the lateral ligaments, have yielded some successes. He thought draining through the

condylar pouches better than through the popliteal space. For more advanced cases, where resection would formerly have been resorted to, he approves of making a transverse incision entirely across the joint above the patella, well into the lateral ligaments, thus opening the entire joint when the limb is strongly flexed. In three cases where the elbow had become infected through a compound fracture of the olecranon process he removed the process down to its base, carefully preserving the lateral fascia of the triceps and treating the arm in the acute flexed position. In all cases the sepsis promptly ceased, and the ultimate motion and strength of the arm nearly approached the normal. This method probably gives a more useful arm than resection of the humerus where the septic process is far advanced.

President's Address.

DR. JOSEPH D. BRYANT, in the annual president's address, after briefly recounting the facts that led him to accept the presidency a second time and mentioning some of the numerous obstacles he had encountered in his endeavor to perform the responsible duties laid on him, said:

"I will now bespeak your undivided attention, while briefly considering the character and the importance of the chief possessions of the State Medical Society, and of the great consequence of their development and care. For the purposes of orderly thought in this consideration, these possessions will be grouped under two distinct headings:

"1. Those already acquired and of established material worth.

"2. Those of professional character, the prospective products of present opportunity and of devoted personal effort.

THE JOURNAL.

"The important factors of the first class are the *New York State Journal of Medicine*, the Medical Directory of New York, New Jersey and Connecticut, and the belongings relating thereto, a library of considerable dimensions, a fruit of consolidation with the New York State Medical Association, and finally, the privilege of legal and moral support of the society in malpractice defense.

"The *Medical Journal* which, since its inception until a short time ago, has been to a greater or less degree a financial burden, is now reported to be no longer a source of expense. And you will be told by those who should know whereof they speak, that with active promotion, proper support and prudent vigilance, the journal will soon become a continual source of healthful influence and of substantial revenue. I am, however, clearly of the opinion that the net earnings of the journal should be utilized for its betterment, and for the purpose of extending, when feasible, publication courtesies to such of those as contribute to its pages important and original articles. It should not be the policy of this society, in my judgment, to accumulate worldly belongings, but instead to increase the wealth of good fellowship and professional advance, by a wise adjustment relating thereto, of its business management.

"In this relation it is well that you should realize at the outset, that our journal is having a circulation such as few medical journals possess, and with a prospect of a large increase in the near future, affords opportunity fertile with responsive possibilities, for those who thrive by the proper exploitation of legitimate business aims. The policy of announcement of business matters in the journal is advised and supervised by the versatile chairman of the committee of publication, Dr. E. Eliot Harris, who has given much time and thought to the differential consideration of patent, proprietary and allied kinds of medical agents. The recent report of the committee relating thereto is both instructive and interesting, especially in these particular respects.

"It should be plainly understood at this time, that the policy of the control of affairs by the *ad interim* house of delegates, has been to conduct matters relating to the society so as not to constitute a pledge of real or implied nature which might be binding on the organized body, at least, for a longer time than should be required by it, to secure a satisfactory adjustment of its own matters of state.

"Therefore, any objectionable items of business announcement, that are the products of previous contracts or of later conceptions of propriety, which now find places in the publications of this society, are either of brief permissible tenure therein, or of limited obligatory continuance, and, in all respects subject to the selective verdict of the house of delegates and council of the present organized body. I hope you will pardon a seeming presumption on my part if I urge in this connection that, in the making of future contracts of these business announcements, the basis of such action should comprehend demands for pure drugs, whose names and virtues are in all respects definitely and ethically stated, and which are the products of honest pharmacists. A different course than this would be a faithless one and, therefore, destructive of professional claims of honesty and of truth on our part, since in the conduct of our publications the business and the editorial departments, especially of the journal, are under like control. Whether or not the medical journals which for covetous business reasons, exploit remedial agents in a manner calculated to deceive the unwary, the unsophisticated and the indolent, are to receive professional support, will, as it seems to me, be determined more by the outcome of patiently developed, and higher comprehensive professional sense, than by other inhibiting influences. In the blazing of the way in these matters relating to honest ethical action, one can gain much, indeed, in fitting knowledge and abiding support, through the force of the example which is now being established by the parent organization. The scientific reports of this medical body regarding the character of exploited remedies submitted by its wisely formed and impartial 'Council on Pharmacy and Chemistry' and published from time to time in THE JOURNAL of the American Medical Association along with the action taken in noteworthy cases, are deserving of thoughtful study and of prudent emulation. And concerning this matter I advise that the reports of this council and of the action taken relating thereto, be consulted by those who are hereafter placed in charge of these very important questions.

"The scientific part of the *New York State Journal of Medicine* affords ample opportunity to the members of the organization to consult with each other in matters of professional interest, by the means of published opinions, and, thereby correspondingly, to profit mutually in many substantial ways. The fact that each member of the organized body has rights in the publication equal to those of another, would seem to inspire sentiments of mutual interest and fidelity, resulting in a more extended and higher standard of professional fellowship, than sometimes appears to exist. And, too, the united voice of the profession can be heard through the agency of the journal, with a clear and unhindered emphasis on all matters relating to common professional and common public betterment. And it is not impossible, that some members of the profession, whose isolation or experience has begotten in them exaggerated notions of self-reliance or personal attainment, might, at a trivial outlay, gain in wisdom and correspondingly in skill, through the instrumentality of printed communion with their fellow laborers in the field of medical endeavor. Also the *State Medical Journal* affords the best opportunity, and at the least outlay, of keeping in touch with the attainments of others, and of placing those of your own before the profession, that can be devised."

The speaker then stated that the editorial policy of a journal like theirs should be guided by the consensus of opinion of a commitee rather than by the editor himself.

THE DIRECTORY.

In speaking of the medical directory of New York, New Jersey, and Connecticut, issued by the society, Dr. Bryant said that he believed it to be the best book of the kind ever issued. The 1906 edition had been exhausted, which spoke highly for the interest taken by the profession in the work, and the president was disposed to attach great importance to the directory as a valuable asset of the organization. It is, he thought, "a prolific source of information in many matters of pressing interest of a professional nature, settling many questions of professional status to the satisfaction or the discomfort of honest inquiry, or deceptive intent, respectively," and it enables one, "especially at a distance, to come promptly in practical contact with another, thus providing a co-operative touch in business and professional matters of common interest."

MALPRACTICE DEFENSE.

In speaking of "The Privilege of Legal and Moral Support of the Medical Society in Malpractice Defense," Dr. Bryant called attention to the well-known fact that by far the greater number of malpractice suits are but unwarranted legal persecutions. In the majority of cases suits brought against physicians work deep and lasting harm, even though honorable acquittal is rendered, for "homely truth in a race of justice can rarely overtake picturesque falsehood." It seemed to him that each member of the society should take pleasure in supporting an organization which would provide a reasonable defense of

those unjustly attacked in the faithful pursuit of their calling. No one "engaged in the practice of medicine is immune to the subtleties of malignant mischief, or to the embarrassments of defensible error."

MEDICAL ORGANIZATION.

On the matter of medical organization the president said:

"Strange as it may appear to be, not half of the members of our profession in this populous state are constituent parts of representative medical organization. Many of these members plod their weary way in comparative professional seclusion, unconscious or uncaring of the higher, more attractive and ennobling state, as begotten by sympathetic and mutually profitable intercourse with the profession at large.

"This condition is not what it should be, since the non-members and the members of organized medical men alike, are losers thereby, the former, because of the loss of contact with those general professional activities which hasten understanding, and correspondingly enhance confidence and self-respect; the latter, because hidden away in the experience of the former class of practitioners there is much indeed, relating to the healing art of great significance to the entire medical profession. If it be true that medical men or populous environment, possess comparatively more medical knowledge than do those of meager surroundings, it is equally true that the difference is largely the outcome of the special advantages arising from the benefits of a broader personal contact, for, at the beginning of their respective careers no special dissimilarity can be noted. It follows, therefore, that medical society membership affords a remedy of great importance in this respect, hence, the membership should be increased and extended, and professional intercourse developed, in order that to each medical man may be given the opportunity of contributing his special attainments toward advancing the common good of the whole profession.

"At the present time, the membership of this society is about sixty-five hundred, of which over 90 per cent. have already qualified for continued membership, and are to-day receiving the benefits relating thereto. Each of these members should bring into the medical fold one of those who is not a participant with him in the special advantages of general professional relationship. The proper fraternal spirit in this society should purpose that every practitioner in medicine divorced from special dogma, and in good standing as a physician and a citizen, should be entitled to membership.

"The organization of the medical profession here, and everywhere throughout the country, contemplates the realization of more than the scientific advantages arising from personal contact and local co-operative thought. It should be regarded as an earnest, that the medical profession intends to take an active and controlling part, if possible, in those affairs of civil life which relate to the physical welfare of the body politic. There should be no question regarding the status of the medical profession in all matters relating to the securing of pure food, pure drugs, and wise public sanitation. Properly fathered measures, directed to attaining these ends in the promptest and completest possible way, should receive the earnest, honest support of united medical effort. It goes without saying, therefore, that your committee on legislation should be both vigilant and active in the discharge of its duties, vigilant in the detection and defeat of bad legislative efforts, and active in devising and promoting those which, in all respects, are good. And in supporting the efforts of your committee on legislation, each member of the medical body should make his influence felt in no uncertain manner, in the guiding legislative sense, so as to insure wise and beneficent law-making.

"It should come to your knowledge at this time that this state is entitled to be represented on the Committee of Medical Legislation of the American Medical Association. The purposes of this committee, under the able leadership of Dr. Charles A. L. Reed, of Cincinnati, relate to the molding of national legislation of general interest to the medical profession and of coincident importance to the people of the country. The functions of the Bureau of Medical Legislation, as set forth by Dr. Reed, are as follows:

"'To formulate lists of correspondents; to revise and keep active the organization of the National and Auxiliary Councils; to issue all referenda, both special and general, and to conduct all routine correspondence relative to the legislative work of the American Medical Association.'

"The National Legislative Council generally convenes in Washington during the first month of each session of Congress. The appointment of a representative by the state on this committee is of great importance, and, therefore, I earnestly commend such action to your attention."

LEGISLATION AND INSURANCE EXAMINATION.

President Bryant then spoke briefly of the bill recently introduced in the New York legislature providing for a single-headed board of examiners. This board is to be appointed by the Board of Regents and independently of all medical society recommendations. Dr. Bryant deprecated the contest that had recently arisen between the insurance companies of the state and their medical examiners. He was disappointed and grieved to know that many companies were recipients of medical services at a rate which could not call for the thoughtful consideration such work demands. He suggested that a committee be appointed to whom shall be referred all matters relating to medical insurance examinations that may come to hand during the current year. In closing his address Dr. Bryant spoke in terms of admiration of Dr. Warbasse, the editor, and also of the secretary, Dr. Ursner R. Townsend and attorney Lewis. He paid a gentle tribute to the memory of the late George Ryerson Fowler, who had been a student under President Bryant, as well as a close personal friend.

(To be continued.)

BOSTON MEDICAL LIBRARY MEETING.

Regular Meeting, held Jan. 16, 1907.

DR. GEORGE B. SHATTUCK in the Chair.

Treatment of Chronic Heart Disease.

PROF. THEODORE SCHOTT, Bad Nauheim, Germany, said that prior to 25 years ago rest and digitalis were the only therapeutic measures used in heart disease. About 25 years ago three methods of treatment appeared simultaneously and quite independent of each other. They are known to-day as (1) Swedish treatment by massage; (2) Oertel's method, mountain climbing, and (3) the balneologic method of the Schott brothers, combined with gymnastics. During recent years the number of remedial agents has largely increased, but Professor Schott found that digitalis with and without digitoxin is a mainstay, but some times the accumulative effect calls for other means, especially tincture of strophanthus, or strychnin when the heart muscle is weak and relaxed. Its use is desirable to produce stronger contractions of the wall of the heart, but unless carefully watched it some times sets up a condition of abnormal irritability occasionally followed by weakening of the cardiac muscle.

The nitrites, especially nitroglycerin, in 1 per cent. solution, are used in conditions where increased tension exists in the arteries. The action of this is sometimes highly effective in case of pain in angina pectoris. The salts of iodin sometimes produce a good effect like that of the nitrites.

Salts of mercury, and especially calomel, are not remedies for the heart in the strict sense, but combined with digitalis they are used for their depleting effect. The slowing of the pulse caused by morphin is the result of the vagi (?) action through the nervous mechanism; thus it fails to tone up the heart muscle, though this remedy is not to be disregarded in cases of pain. It should not be used too frequently nor for too long a time.

Oertel's Method.—Twenty-five years ago the treatment of heart disease by mountain climbing was advocated by Oertel, with restriction of quantity of liquids ingested. Oertel had three objects in view; first, to force the circulation by reducing the amount of liquid in the blood; second, to strengthen the heart by mountain climbing, and third, to remove the superfluous fat by diet. The mechanical part of Oertel's treatment consists in walking and climbing, in which different degrees of climbing were prescribed, in which he hoped to obtain development of the heart by increased action of the muscle. He now combines that with the application of dry heat, electricity and massage. His original treatment was devised for fatty heart. Oertel's treatment can only be adopted in a limited number of cases.

Swedish Method.—This method was started on a large scale in Sweden. Having no scientific basis and not being improved on, the Swedish method never went beyond Sweden until

Zander took it in hand. Opinions are divided as to its applicability. The difficulty to properly regulate the resistance in the apparatus and the expense are the chief objections.

Schott Method.—In 1872 Stokes of Dublin showed that patients subject to rheumatic fever could successfully use mineral baths, when rheumatism was combined with cardiac complaints. The Schott brothers found that carefully regulated balneologic treatment combined with gymnastics, mountain climbing and well regulated hygienic conditions frequently produced an improvement and even an absolute cure. They showed that the same principles underlie their treatment as underlie the treatment by digitalis and rest, namely, toning up a weak heart.

In the majority of cases there exists a comparative inadequacy of the heart muscle to propel the necessary amount of blood. Not every dilatation leads to lack of compensation We must differentiate between dilatation due to congestion and dilatation following valve lesions. The action of the heart muscle must be improved so that the heart may rid itself of the greater amount of blood. The heart goes through many insufficient contractions, and after each systole a certain amount of blood remains in the heart cavities. The congestion can not be relieved by the heart itself. By balneologic and gymnastic treatment the heart is able to make stronger contractions. The heart is now able to empty the cavities completely during systole, and concomitantly the diastole is prolonged. In this way the heart is relieved of the constant overpressure which acted on the inner surface of the cavities, inviting the muscle to insufficient contractions. The effect is noticeable. Many others have attempted to explain the effect of the baths by the derivation of the blood to the skin and muscles, in this way a relief of the heart may be produced; but in Dr. Schott's opinion this does not explain the immediate benefit of the baths. The effect of the bath is much weaker, but more enduring. The effect of the exercises is more energetic and less lasting. There is a diminution of the congestion in the pulmonary system as well as in the venous system, a decrease of hepatic congestion and a reduction in the cyanosis and a decrease in the frequency of the pulse. In consequence of the increased quantity of the blood thrown into the arterial system the sphygmograph shows higher pulsations and a prolonged diastole. A later circumstance is restoration of the heart muscle.

The effect of the measures may be shown by percussion. Radiograms are valuable, but the difficulty of getting the patient in the same position is liable to lead to a variety of errors. Auscultation discloses a change in the cardiac signs, the weak signs become audible, a murmur produced by insufficiency becomes a normal sound, a murmur which was not audible becomes so. The apex beat moves upward and inward; this with a simultaneous rise in the level of the diaphragm shows that the heart has been improved. The effect is similar to the effect of digitalis, but the injuries of digitalis are avoided. The strengthening of the heart is produced by the disappearance of congestion in the venous system and by an increased amount of blood in the arteries; owing to this fact the blood that flows into the coronary arteries is more highly oxygenated and the heart is better nourished. Dr. Schott has made investigations of the changes of the blood during this treatment and showed that in those cases where the amount of hemoglobin was diminished it became increased by the treatment in question.

Dr. Schott emphasized that careful individualization is necessary in the treatment. It is very often advisable to observe the patient before, during, and after the bath. Nauheim baths contain 2 to 3 per cent. of sodium chlorid and about the same percentage of calcium chlorid. The percentage may be diminished or increased by the addition of mother lye. The duration of the bath should not be more than 10 minutes at the beginning. The temperature, 95 F., must not be exceeded, otherwise the tonifying effect on the heart might fail to appear. If the patient remains quiet, he may feel a sensation of chilliness; later he has a feeling of comfort. But should this feeling of comfort not be obtained within a minute the temperature of the bath should be raised. The patient should have a feeling of comfort while in the bath. A secondary chilliness should be avoided. If it occurs it means that the bath was of too low temperature or too prolonged. Either the temperature must be raised or the patient leave the bath immediately. On the following day the bath must be taken warm. If the patient bears the treatment well, more concentrated baths may be given by increasing the per cent. of calcium chlorid.

Later on the patient takes the baths containing carbonic acid, beginning with a weak per cent. of the gas. These are the effervescent baths or sprudel baths. In sprudel baths there is free carbonic acid gas. In strong sprudel baths the water flows in and out with an excess of pressure over the atmosphere. The duration of these baths may be increased to 20 minutes, but not beyond that. After the bath the patient should be rubbed to a glow, then he should remain in bed for an hour.

The baths should be given progressively cooler, longer, and more frequently. The strict supervision of the conditions of the bath should be kept up uninterruptedly. The effect of the last bath is a guide for the next. The beneficial action is brought about by the mineral constituents, especially calcium chlorid, which acts on the peripheral nerves, by the carbonic acid gas and by the temperature, The summer months are most suitable for the treatment. Two to four weeks are advisable for moderate cases. An after period of rest should follow. In winter the patient should seek a southern climate.

Many mistakes arise in the application of the artificial Nauheim bath. The carbonic acid is not the only constituent that acts on the heart; all the ingredients are necessary. It is evident that constant medical supervision based on long experience is necessary. The patient must be relieved of family and business worries; a suitable diet is also of importance. In some cases excellent results may be obtained from the artificial Nauheim baths. The number of successful cases must be limited because the strongest Nauheim effervescent baths can not be made artificially.

Graduated gymnastic exercises act through the motor apparatus; the baths through the sensory apparatus. The following principle may be considered in the application of gymnastic exercises: Each exercise must be performed slowly, and resistance must be so regulated that the patient is always in condition to breathe freely; fatigue must be avoided; this is best avoided by exercising alternate groups of muscles; the pulse must be watched. A bedridden patient may perform these exercises and become able to get about. In some cases in which digitalis had been used extensively it ultimately proves inefficient, whereas in combination with baths and exercises it again produced its effect.

After the conclusion of the treatment by exercises the patient should resort to mountain climbing, but only when the heart muscle is strong enough. The powerful effect on the heart indicates in what cases this treatment is inapplicable. They are aneurism of the heart and large vessels; cases of advanced arteriosclerosis, and degeneration of the heart muscle. Every increase in muscular action becomes dangerous in these cases, as it might lead to rupture of the aneurismal sac, or produce apoplexy or embolism. The application of cold is also a good means of quieting the heart's action. In cases requiring immediate stimulation high-temperature baths should be used over the entire chest. Until recently electricity was mainly used to quiet the heart's action.

A mixed diet is to be preferred, nourishing and easily digestible food, no spicy dishes or effervescent beverages should be used. The consumption of any great amount of liquid should be avoided, for a distended stomach pushes the heart upward and impedes its action, the heart having to struggle against an increased abdominal pressure. When this pressure already exists it may be made to disappear by combining a lime-water cure with the diet. The use of tobacco should be greatly restricted or entirely discarded.

The discussion on this paper was participated in by Drs. H. F. Vickery, C. F. Withington, H. D. Arnold, R. C. Larrabee, Joseph H. Pratt and E. P. Gerry, who joined in complimenting the essayist and endorsing the value of the method of treatment described by him.

Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and methods of treatment for the diseases seen especially in every-day practice. Contributions will be welcomed from our readers.]

Typhoid Fever.

(*Concluded from page 545.*)

Continuing the subject, Thayer describes in detail the methods of sterilization of excreta:

Sterilization of the Urine.—The simplest and best method of sterilizing the urine, he states, is to place about 200 c.c. of a solution of 1 to 1,000 bichlorid of mercury in a large jar, which should always be kept covered. The urine should be poured directly into this jar. This amount of bichlorid would be sufficient to sterilize 3,000 c.c. of urine. The amount should be left standing until two hours after the urine has been added. Another vessel should be provided containing a 1 to 100 solution of bichlorid of mercury or a sufficient quantity of a 1 to 20 solution of carbolic acid, in which the urinal may be immersed during the period when it is not in use. A urinal which is used for a typhoid patient should not be used for others without previous sterilization. Urotropin (hexamethylenamin, U. S. P.), does not sterilize the urine. It does, however, prevent the multiplication of bacilli in the urinary passages, and is an important help. This drug may be given in doses of about 2 gm (gr. xxx) a day, divided into three or four doses.

Sterilization of the Feces.—The most satisfactory method of sterilizing the feces, Thayer states, is to add to the dejection about twice its volume of a 1 to 20 solution of carbolic acid; this is stirred up thoroughly and allowed to stand at least for two hours. The bedpan should be thoroughly washed out with carbolic acid and kept immersed between the periods of use unless it be sterilized by boiling or heat. The feces should be kept in the mixture for at least two hours.

Sterilization of the Bath Water.—This is accomplished by adding to each bath tub about half a pound of chlorid of lime, which will thoroughly sterilize the water in half an hour.

Sterilization of the Linen.—All linen should be soaked in a 1 to 20 solution of carbolic acid for about two hours before sending to the laundry. If, however, it is put directly into the boiler the same end may be served.

Sterilization of Dishes and Utensils.—All dishes should be sterilized thoroughly by boiling.

SUPERVISION OF THE PATIENT UNTIL HIS EXCRETA ARE FREE FROM BACILLI.

This is a demand impossible to meet without skilled laboratory assistance. In the absence of this we must continue all precautions till the discharge of the patient, warning him when he leaves our hands that unless he exercises care in the disposition of his excreta he may be a source of danger to those about him. Happily, the great majority of patients are by this time free from bacilli. If these measures were carried out strictly in every case typhoid fever could be eradicated from the community. There are, however, various difficulties in the way, chiefly because of the fact that many cases of mild walking typhoid are unrecognized, and that some other convalescents excrete typhoid bacilli in their urine and feces for months.

Local Treatment in Diphtheria.

Bourget in *Revue International de Clinique et de Therapeutique* and *Journal de Medicine de Bordeaux*, recommends the following local treatment in this condition. As soon as the patient with pharyngeal diphtheria enters the hospital his throat is swabbed with the following mixture:

℞. Liquoris ferri chloridi
Pulv. alumnis
Acid borici, āā ..... ℥i 4
Glycerini ..... ℥x 40
M. et ft. sol.

This is to be thoroughly applied by means of a tampon to the back of the throat and the whole affected area. The applications are to be repeated every few hours, using, of course, a fresh tampon each time. Five or six applications are made at each sitting, and these are repeated hourly, if necessary, or every two hours. A few minutes after each treatment the patient uses the following gargle:

℞. Tincturæ krameriæ
Tincturæ guaiaci, āā ..... ℥i 30
M.

Two teaspoonfuls of this mixture are placed in a glass of warm water and this quantity is used in rinsing the mouth and throat. By proceeding in this manner a marked improvement is soon apparent in the general condition of the patient. Often the fever ceases on the third or fourth day.

Baginsky, in *Modern Clinical Medicine*, describes the local treatment of diphtheria as follows: The former severe mechanical and chemical measures used to remove the membrane are not in vogue to so great an extent at the present time. If used they are employed for the purpose of destroying the bacilli and thus preventing the further production of toxins, as the bacillus is not influenced in its property of life by the serum. For this purpose the following may be used:

℞. Potassii permanganatis ..... gr. xxx 2
Aquæ dest. ..... Oii 1000
M. et ft. sol. Sig.: Use to gargle the throat as directed.
Or:
℞. Hydrargyri chloridi corrosivi ..... gr. ss .03
Aquæ dest. ..... ℥ii 60
M. et ft. sol. Sig.: Paint on the affected parts with a soft cotton swab from two to four times a day. Or:
℞. Hydrargyri chloridi corrosivi ..... gr. ss .03
Ichthyoli ..... m. l 3.30
Aquæ dest. ..... ℥ii 60
M. et ft. sol. Sig.: Paint on the affected parts with a soft cotton swab as directed.

This preparation Baginsky considers especially valuable, as ichthyol is said to kill the cocci that are present, whereas the corrosive sublimate has a more selective action on the bacilli.

Rotch and Caille do not recommend the vigorous local treatment of this condition by swabbing with either strong or weak solutions, but rather give preference to the method of cleansing the nose and throat by irrigating with mildly antiseptic solutions. Caille thinks the best way to cleanse the nasopharynx is to pour liquid into the nose from a spoon. If the nose is partly or almost completely stopped up a blunt piston syringe or a fountain syringe may be used. The irrigations may be done every hour or two, depending on the severity of the case.

Rotch describes his method of irrigation as follows: The method of irrigation by the fountain syringe may be employed for either nose or throat, except that a larger glass nozzle should be used for the throat. The child should lie on its side and the watery solution should be made to pass up one nostril and down the other until the stream runs clear. In some cases the child prefers to sit up for irrigation. Ordinarily the irrigation should be used every two or three hours, with longer intervals at night. If the child resists the treatment it may be well to lengthen the intervals or to omit it for a time, in order to preserve the child's strength. A similar method may be used for the throat and is of great comfort to the patient.

The following solutions are recommended for the irrigation:

℞. Sodii chloridi ..... ℥i 4
Aquæ dest. ..... Oi 500
M. Sig.: Use as irrigating fluid.
Or:
℞. Acidi borici ..... ℥iv 15
Aquæ dest. ..... Oi 500
M. Sig.: Use as irrigation for nose two to four times a day.
Or:
℞. Potassii permanganatis ..... gr. iii .18
Aquæ dest. ..... Oii 1000
M. Sig.: Use as irrigation for nose and throat as directed.
Or:
℞. Hydrargyri chloridi corrosivi ..... gr. iss .09
Aquæ dest. ..... Oii 1000
M. Sig.: Use as irrigating fluid for the nose and throat.

Book Notices

A HISTORY OF THE BOSTON CITY HOSPITAL, from its Foundation Until 1904. Authorized by the Trustees and Edited by a Committee of the Hospital Staff, David W. Cheever, M.D., George W. Gay, M.D., and others. Cloth. Pp. 422. Boston: Municipal Printing Office, 1906.

The history published by the authority of the hospital covers a period of 40 years since 1861, the date of the foundation of a municipal hospital in Boston, and forms very interesting and instructive reading. The expense for the first building was limited to $100,000. The total of the present properties of the hospital are assessed at $3,061,500. The bed capacity of the hospital in 1864 was 208; in 1906, 615; the appropriation for maintenance in 1865 was $66,789.04; in 1905, $486,776.88. It will thus be seen that not only the number of patients, but the expense per patient has materially increased. The hospital was located in a somewhat insanitary portion of the city, but considerations of economy and expediency prevailed at that time and have prevented a change of location. An objection at the time of its foundation was its great distance from the center of population, but the growth of the city and the incorporation of suburbs now makes the hospital conveniently central. In speaking of the ventilation of the hospital basement a curious error appears. The writer of this chapter, Dr. G. H. M. Rowe, superintendent of the hospital, states that carbon dioxid gas was found in as high a proportion as 5 to 6 per cent. Reference to the reports of the Massachusetts State Board of Health for January, 1899, however, (from which, we learn, Dr. Rowe derived his statistics) show that the figures are misquoted, being five to six parts in 10,000, or 0.05 to 0.06 per cent. In addition to the hospital proper the buildings include out-patient buildings, an emergency relief station in the central part of the city, and a south department for infectious diseases. The hospital buildings also include a nurses' home and a medical library building for the use of the house and attending staff, the library containing 4,000 volumes, mostly of the latest books, as well as the classified clinical records of the hospital, which have been the basis of a considerable amount of valuable medical literature, as witness the Medical and Surgical Reports of the Boston City Hospital. A striking feature of the record of the management of the hospital—not to its credit—is the persistent refusal of admission to women medical students.

The history, which is freely illustrated, gives an account of the medical staff which has served the hospital from its inception and includes many eminent men. The reminiscences of some of the attending and house physicians emphasize the contrast between present aseptic surgery and the practice as it existed before the introduction of Listerism. Succinct accounts are given also of the trustees and superintendents of the hospital; of the inception, growth and present status of the various departments in the institution; of the training school for nurses, the libraries, the gifts and bequests, the methods of teaching, etc. The reader is impressed with the long and continuous periods of service of many of the members of the board of trustees, which from the beginning has been small and compact. The fact that the hospital since its beginning has had but three superintendents, the present incumbent having just completed a quarter of a century of "especially faithful and notable service" is also noteworthy and in striking contrast to the frequent, disturbing changes that heretofore have marked the management of so many other American municipal hospitals. A similar permanency of service has been the case also, at least to a large extent, with the members of the attending staff, two of the original members—David W. Cheever and John G. Blake—still remaining. The progressive, harmonious development of the hospital and its present high degree of efficiency and completeness in organization and equipment must be ascribed in large measure to this continuous service of faithful officers—who can doubt the wisdom of this system?—the result being a stable and skilled management. The hospital staff enjoys the privilege of nominating power, put in their hands by the trustees, to fill vacancies in their number. Teaching was begun four months after the opening of the hospital and has not ceased, but been amplified continuously ever since. This history is, in short, a truly remarkable record of public spirit and civic intelligence worthy of the close study and active emulation of the officers of every American municipal hospital. The true functions of a hospital are essentially threefold, namely, to care for and properly treat sick and injured human beings, to instruct students of medicine, and to study and investigate to the end that knowledge and control of disease may increase. The Boston City Hospital has given an account of the manner in which it has performed and now performs these functions that brings credit to Boston and will be of great value to sister communities.

THE DISSOCIATION OF A PERSONALITY. A Biographical Study in Abnormal Psychology. By M. Prince, M.D. Cloth. Pp. 569. Price, $2.80 net. New York: Longmans Green & Co., 1905.

This is the second work that has appeared within two years on the interesting subject of multiple personality and, like the previous one, it is based on the observations of a single case. The present volume is more thoroughly a case report, and the subject has been already introduced to the medical reader in one or two preliminary articles by the author. The patient certainly was an extraordinary instance of a peculiar condition. There were three principal personalities: B I, a saintly neurasthenic; B III, a mischievous, childish character, and B IV, who was a later appearance, a more normal individual, but yet not the real Miss Beauchamp, which name the author gives to the subject of his study. B I was unconscious of everything done by the personality B III and B IV. B IV was similarly amnesic of the ideas and sensory experiences of B I and B III, though there was a sort of continuity of the emotional states of B I and IV to some extent, while B III, or "Sally," was perfectly conscious of the doings of the other two and even knew the thoughts of B I and later those of B IV. B II was a hypnotic condition which plays but a small figure in the history. "Sally" derived a malicious delight in tormenting her co-personalities. In the later portions of the history B I and B IV are synthesized into the real Miss Beauchamp and "Sally" goes out of existence, at least temporarily. In addition to the three principal personalities there are a number of modified conditions of fatigue, semi-somnambulistic states, etc., and the author uses diagrams like the graphic formulæ of chemistry to represent the various personalities and auxiliary side-chain conditions in the relations to each other. The report of the case is most thorough and the author introduces various letters and writings of the different personalities which illustrate their differences and peculiarities. Altogether it is a remarkable work of its kind. The story is told in a picturesque way and the tragi-comic complications due to the machinations of "Sally" are very strikingly put before the reader. The real personality which finally develops is perfectly conscious of the doings of B I and B IV, but not of those of the mischievous B III except indirectly, and the latter has disappeared except in special conditions of ill health, and it is not possible at the date of the author's final writing to say what part, if any, she plays in the subconsciousness of the restored normal individuality or whether, in fact, she exists as a sub-personality at all. Cases of alternating personality are not so uncommon, but that instances have been under the observation of most neurologists of extensive experience. The case here related is, however, so far beyond the average that its publication is a somewhat noteworthy contribution to the literature of these rather obscure psychological phenomena. The author promises to complete his study in another volume in which he will discuss the theory of this case and of disintegrated personality in general, and the various normal and abnormal conditions of the subconscious in human cerebration.

A TEXT-BOOK OF PHARMACOLOGY AND SOME ALLIED SCIENCES (Therapeutics, Materia Medica, Pharmacy, Prescription-writing, Toxicology, etc.), together with outlines for Laboratory Work, etc. By T. Sollmann, M.D., Professor of Pharmacology and Materia Medica in the Medical Department of Western Reserve University, Cleveland, Ohio. Second edition, thoroughly revised and enlarged. Cloth. Pp. 1070. Price, $4.00 net. Philadelphia: W. B. Saunders Company, 1906.

The five years that have elapsed since the publication of the first edition of this valuable text-book have been marked by great activity in pharmacologic research. So many details

have been added to our knowledge and so many of our conceptions have been modified that the author has deemed it desirable not merely to revise, but practically to rewrite the book in order to make it representative of the present state of science. That this has been thoroughly done is shown by the frequent references to recent work. The author remarks that perhaps disproportionate space has been given to some of the newer remedies, but this can not be regarded as a fault since a critical treatment of these preparations is much needed at the present time. The section dealing with laboratory work has been entirely remodeled. It has been found not only desirable, but quite feasible, to teach pharmacology largely by the laboratory method, and, indeed, to make this the basis of, rather than an adjunct to, the instruction. The description of the technic and apparatus has been elaborated so as to form a guide for the beginning investigator, as well as for the instructor. A useful bibliography which is of necessity incomplete, but gives references to the latest work, has been appended. Materia medica is revised to accord with the new U. S. Pharmacopeia and the more important preparations of the National Formulary are introduced. The treatment of proprietary remedies is very judicious. They are indexed under their trade name to facilitate reference, but in the text they are almost uniformly referred to under their proper chemical designation with the trade name in parentheses. The attention given to toxicology is unusual in works on materia medica, but is a useful addition. A general chapter treats of the methods of toxicologic analysis and of the treatment of poisoning and the toxicology of each article is given separately, including the symptoms and treatment of chronic poisoning and drug habits. Such a treatment brings this subject into the relation with pharmacology and therapeutics where it properly belongs. The minor details of pharmacy, including prescription writing, dosage, the use of flavoring agents, etc., are given a place to which their great practical importance justly entitles them. The subject of flavoring medicines, which is largely neglected in other works on materia medica, is given 12 pages, mostly in fine print. A very instructive section on the "Historical Development of Therapeutics" is included in the introduction to pharmacology.

This volume is adapted to the double purpose of the instruction of students and the information of the practitioner wishing light on the conclusions of modern science in regard to the action of drugs and the methods by which such conclusions have been formed. By the use of display type the main facts are made prominent, and the details of research are to a large extent placed in smaller type. Therapeutics is based as far as possible on physiologic action, and the conclusions in many cases ought to correct notions long current among practitioners. For instance, the rational use of uric acid solvents is limited to irrigation of the bladder to dissolve calculi. Given internally they can be of no service because of the presence of sodium in the blood and urine. The stimulant action of alcohol is explained as illusory, while it is not denied that it may be of service therapeutically.

A careful perusal of this work will repay not only the student and the instructor in materia medica, but also the general practitioner, who should gain from it the conviction that the science of pharmacology, or the action of medicine as determined by experiment, must form the chief foundation for a rational use of therapeutic agents.

DISEASES OF THE NOSE, THROAT, AND EAR. By C. P. Grayson, A.M., M.D., Clinical Professor of Laryngology in the Medical Department of the University of Pennsylvania, etc. Second edition, revised and enlarged. Cloth. Pp. 532. Price, $4.00 net. Philadelphia: Lea Brothers & Co., 1906.

The author attempts to deal with a large subject in a comparatively small space. In so doing he has sometimes strayed far from the proportion that would seem correct to the experienced laryngologist. He has not presented much that is new, but has redressed the old in an attractive form, although in some places much space has been occupied by what is of no interest to the practitioner of experience and by what seems of little value to the student. For example, under the treatment of chronic rhinitis we find the following which, although true enough, does not appear of great value, partly for the reason that he makes no special application of the facts mentioned to the relief of the disease under consideration. "There is no mystery about the success that comes of being thorough, nor is there anything surprising in the inevitable failure that attends carelessness. A great deal of tact must usually be employed in persuading men to reduce their allowance of tobacco and alcohol, and women their sweets and coffee and tea. The excessive use of the latter two articles is much more common than may be usually supposed and always should be inquired about. Our greatest difficulty in the general management of the patient, however, will be encountered in the effort to overcome the habit of overeating and the indisposition to take the proper amount of exercise. It will not be one or a dozen warnings that will correct these matters, but our inquiries and protests must be repeated again and again until the patient is weary of his own weakness and can not excuse his indiscretions by any indifference to them on our part. Having, so far as possible, cleared from our path all these obstructions to a successful issue, we are ready to attack the disease locally."

The book contains many good illustrations copied from Laurens and others, though one copied from Laurens, page 212, showing the method of transillumination of the maxillary and frontal sinuses, gives an entirely erroneous view. There are a few colored plates, one of which, representing the appearance of the naso-pharynx in empyema of the sphenoidal sinus, is deserving of special commendation. As a whole the book may be commended to laryngologists for casual reading, but we can hardly recommend it to the student as a complete guide.

HISTORY OF THE NEW HAMPSHIRE SURGEONS IN THE WAR OF THE REBELLION. By C. P. Conn, A.M., M.D., Published by Order of the New Hampshire Association of Military Surgeons, 1906. Cloth. Pp. 558. Concord, N. H.: Ira C. Evans Co., Printers.

This book consists of a compilation of life sketches of the various men who served either as regular or contract surgeons during the Civil War or who became physicians after their term of army service had expired. Dr. Conn has used General Ayling's *Register* freely, to which he gives due credit. Many names, however, have been introduced that are not to be found in the *Register*, as the history is a much later compilation and Ayling's work did not embrace contract surgeons. Each New Hampshire regiment is taken up separately in numerical order and a brief abstract of the history of each regiment given, followed by the individual histories of its surgeons. After dealing with the various infantry regiments, the cavalry and heavy artillery are briefly considered. The work includes also those physicians of New Hampshire who became United States Volunteers and were commissioned for special work along the line of medicine and surgery. The records of the New Hampshire men who served in the United States Navy were obtained from the Navy Department, and mention is made of the fact that soon after the war closed one of New Hampshire's sons became surgeon general of the United States Navy, the highest official position in that department which our country can bestow on the profession. The book will prove particularly interesting to those of the profession who were in any way connected with the Army or the Navy during the Civil War. The general reader will find many anecdotes and interesting descriptions to enliven what might otherwise prove dry reading.

OUTLINES OF PRACTICAL SANITATION. For Students, Physicians and Sanitarians. By H. B. Bashore, M. D., Inspector for Pennsylvania Department of Health. First edition, with forty-two illustrations. Cloth. Pp. 208. Price, $1.25 net. New York: John Wiley & Sons, 1906.

The author has departed from the beaten track of the usual text-book on sanitation and subjects are introduced which are of interest not only to health officials, but to the laymen, for example, the topics of milk and food supplies, car sanitation, etc. All the subjects considered are dealt with concisely and clearly, the limited scope of the work precluding any lengthy dissertations. The chapter on the cause and prevention of contagious and infectious diseases is excellent. The author's views are in consonance with those of advanced thinkers and practical sanitarians. This little work is commended.

State Boards of Registration

COMING EXAMINATIONS.

MAINE Board of Registration in Medicine, Common Council Room, Portland, March 5. Secretary, Dr. W. J. Maybury, Saco.

MASSACHUSETTS Board of Registration in Medicine, Room 15, State House, Boston, March 12-13. Secretary, Dr. Edwin B. Harvey, Room 159, State House, Boston.

CONNECTICUT Medical Examining Board (Regular), City Hall, New Haven, March 12-13. Secretary, Dr. Charles A. Tuttle, New Haven.

CONNECTICUT Eclectic Medical Examining Committee, State Capitol Building, Hartford, March 12. Secretary, Dr. George A. Faber, Waterbury.

CONNECTICUT Homeopathic Medical Examining Committee, New Haven, March 12. Secretary, Dr. Edwin C. M. Hall, New Haven.

IOWA Board of Medical Examiners, Des Moines, March 19-21. Secretary, Dr. Louis A. Thomas, Des Moines.

OKLAHOMA Board of Medical Examiners, Guthrie, March 26-27. Secretary, Dr. J. W. Baker, Enid.

Rules Governing Examinations in Arizona.—Dr. Ancil Martin, secretary of the Board of Medical Examiners, sends us the following rules governing examinations for license to practice medicine in that state:

1. Examinations will be held in Phoenix on the first Monday in January, April, July and October, lasting two days.

2. Examinations will be conducted in writing in the English language.

3. Examinations consist of 10 questions in each of the following branches: 1, anatomy; 2, physiology; 3, chemistry; 4, materia medica and therapeutics; 5, obstetrics; 6, gynecology; 7, practice; 8, pathology; 9, surgery.

4. In order to be admitted to practice the applicant must obtain a total average of 75 per cent., provided that in no branch shall the percentage be less than 60, except in practice, obstetrics, gynecology and surgery, in which branches the minimum is placed at 80 per cent.

5. The examination fee is payable in advance, on the first day of the examination.

6. Candidates once rejected may appear at the next regular meeting of the board, with the special permission of the board only. The applicant must pay full fee for the next examination.

7. Diploma and affidavits required by law must be presented to the secretary before the examination is started. Blank affidavits furnished by the secretary on request.

8. No applicant known to be a habitual user of morphin or cocain will be examined.

9. Any applicant presenting himself under the influence of alcoholics will not be examined.

10. Any candidate detected trying to give or obtain aid shall be instantly dismissed from the room, and his or her paper for the entire examination cancelled.

11. It is unlawful to practice in this territory while awaiting an examination, but the board will give special examinations when it is deemed advisable. Applicants are cautioned against beginning practice in Arizona before they have received a license. Any physician engaged in the practice of medicine without complying with the law, is not only subjecting himself to prosecution and punishment, but can have no protection in event of malpractice suits, nor can he collect his fees by law. Any contract physician or surgeon in the employ of a mining company's work who has not complied with the law, can be of no protection to the company which employs him, for the reason that he is already violating one of the laws of the territory, and the court can not recognize him as a legal practitioner.

Rules Governing Examinations in Delaware.—The following rules govern examinations for license to practice medicine in Delaware:

1. Questions for approval by the Medical Council must be sent to the secretary of the council at least ten days before the date of examination.

After approval, the selected questions shall be printed and returned to the examiner who must retain them securely in his own possession and under no circumstances shall he allow the sealed envelope to be opened, until the time arrives for the examination on that particular subject. If information relative to the examination be given to a candidate by any member of this Board of Medical Examiners it shall be the duty of said board, on ascertaining that fact, to recommend that the governor annul the commission of such member.

2. Questions must be given out and answers collected punctually at the time specified on the question papers. Under no circumstances will papers be accepted unless the examination be actually held at the appointed time. The time for each examination paper of ten questions shall not exceed two hours.

3. Explanation of questions and criticism or inspection of the answer papers during the examination are positively prohibited.

4. No candidate shall, under any circumstances, communicate in any way with any other candidate, nor have books or helps of any kind, nor be permitted to question any examiner in reference to the meaning or interpretation of the question under consideration, but must rely solely on his or her own judgment as to the meaning of each question, and on his or her own knowledge of the subject in answering. Any candidate violating this rule shall be debarred from that particular examination at the discretion of the examiner.

5. At the close of the examination in each subject each candidate must subscribe his or her name and postoffice address to the following declaration, place it in an envelope, seal and deliver the same with his or her answer papers, to the examiner:

"I,....., now at the close of the examination in (naming the subject), declare that, prior to this examination, I had no knowledge of the questions to be proposed, and have neither given nor received explanations or other aid in answering any of them. (Signed.....

This rule must be read to the applicants before the examination question papers are distributed.

Every set of answers lacking this declaration and signature, nowever satisfactory in other respects, will be rejected, and in no case can this omission be supplied after the papers have reached the Board of Examiners.

6. Any candidate detected in trying to give or obtain aid shall be instantly dismissed from the room, and his or her paper for the entire work canceled.

7. If any candidate withdraw himself or herself, without permission, from the sight of the examiner, his or her examination shall be closed. This rule permits a candidate temporarily ill, to withdraw from the room and return only by the consent of the examiner.

8. No candidate shall, under any circumstances, enter the examination more than thirty minutes late, unless excused by the examiner; and no candidate shall leave the room within thirty minutes after the distribution of the question papers.

All time lost by being absent shall be deducted from the time alloted to the examination of that particular subject.

9. The Board of Examiners shall inspect answers submitted by the candidates as soon as convenient after the close of the examination, and shall complete and report the same at the meeting of the full board, the following Tuesday.

A correct set of answers to the questions of any one paper, shall entitle the candidate to the full mark for that paper, viz.: one hundred points; each full and correct answer rating ten points.

Partial or imperfect answers shall be rated by the examiners in accordance with their degree of fulness and correctness.

10. A general average of not less than seventy-five of a possible one hundred points shall entitle the candidate to a license to practice medicine and surgery in this commonwealth; provided that he or she has otherwise complied with the law.

11. Handwriting of the candidates must be legible. Proper punctuations and use of capital letters and general appearance of examination papers will be considered in making answers.

Method of Conducting Examinations in Pennsylvania.—Dr. Henry Beates, Jr., president of the State Board of Medical Examiners, sends us the following statement of the method of examining applicants for license to practice medicine in that state:

Under the Act of the Assembly governing the practice of medicine, as it at present obtains, candidates, because of the large classes, are examined in a hall which gives a floor space of 36 square feet to each candidate. Candidates are permitted to occupy any seats they see fit to select, and on entering the room are supervised in order to se that no books or aids of any kind are in their possession.

The seats are so arranged as to be under the range of linear vision of the members of the board, who are stationed in certain positions and change their location more or less constantly, so as to see that each candidate is in alignment. Any position other than that necessary to answer the questions by writing is at once recognized, and the individual out of align-

ment notified that he must change his seat. A second failure to comply with the exactions means expulsion. Proof of cheating, in contradistinction to evidence, means, as a maximum penalty, permanent expulsion. Evidence of cheating means expulsion from a given session, with the penalty of not being permitted to reappear for from six months to two years, at the discretion of the medical council, to which body action is recommended by the Board of Medical Examiners.

All candidates must be in place promptly at 9 a. m. and must leave promptly at 12 o'clock. The afternoon session begins promptly at 2 p. m. and terminates sharply at 5 o'clock. Any candidate entering after one-half hour from the beginning of the session can do so only by especial permission of the board, which examines as to the cause of lateness. During the sessions candidates are not permitted to leave the room unattended.

To prevent substitution candidates, when making application to the medical council and proving eligibility for examination, must supply their signature to the medical council. The medical council issues an admission card and the board requires countersigning of this card. The two signatures are compared. I may say in this connection, that even under such circumstances substitution is more or less practicable, and would suggest that each candidate be obliged to supply a photograph of himself.

Even this system can be circumvented, because a substitute engaged in ample time could supply a photograph of himself, and go through the whole system without detection. It might be well to have medical students supply the dean of the college when they matriculate with photographs of themselves, and then to have state boards compare the photographs supplied by the candidates, allowing for a change of physiognomy accompanying advanced years. A practical prevention of substitution is thus secured.

Each candidate signs the papers handed in. We do not believe it possible that partiality can be shown in grading, because the board is no more cognizant of the individual who signs these papers than would any one who would open letters in a postoffice and read the signature, have knowledge of the author of the letter so perused.

A rule of importance in force is, that a candidate must not, by any quotation or other manner, indicate the school from which he has obtained his degree. A candidate so doing has his papers eliminated and his examination declared void.

Eligibility for examination for licensure in Pennsylvania is not determined by the Board of Examiners, but by the Medical Council, a body created under the Act of Assembly especially for this purpose. If the Medical Council is satisfied with the credentials, which embody a preliminary education approximating that which is exponent of a reputable four years' high school course, and for the medical qualification a diploma issued by a reputable medical college after four years of medical study, it issues a card of admission to such candidates, and notifies the board of its action. At the session of the board the candidates to be admitted must present this card.

The question of proof of moral character is provided for in the Act of Assembly, but should receive more careful attention than it does. Experience shows that some of our licentiates have degenerated into quackery and various forms of charlatanism, and it is hoped that the state of Pennsylvania will be able so to amend its act as to empower it to revoke the license of such a type of characterless licentiate.

NOTE.—Since the above was received the following letter has come to us:

To the Editor:—The Medical Council of Pennsylvania has unanimously adopted a rule, which I think of sufficient value to warrant presentation to the profession at large through the columns of THE JOURNAL. It is that in the subject of chemistry in the examinations for licensure, questions shall be specifically and therefore legally those of chemistry *only as applied to medicine*, and not as a science.

I regard this as a very important advance, for it certainly is not right to expect of physicians making application for examination for licensure, an examination in the domain of the science of chemistry. Perusal of questions of various state boards demonstrates that questions in manufacturing chemistry, absolutely foreign and remote to the chemistry of medicine, and in no sense a test for qualification to practice medicine or surgery, are frequently submitted. This is eminently unfair; certainly is not legal, and is so demoralizing to candidates, when before an examination of so vital importance to them, as to render them incapable, in a large measure, of doing themselves justice.

The Medical Council has also ordered that, beginning with the June session of the State Board of Medical Examiners, 1907, candidates must supply photographs of themselves, signed by the deans of the colleges from which they have graduated, and countersigned by themselves. Recognizing the impracticability of older practitioners complying with this requirement, an especial provision is made for this class of examinees, which provides that they shall supply photographs signed by themselves, and file affidavits to the effect that the long time since they have graduated or whatever other impracticability may be set forth, prevents the complete fulfillment of the requirement being observed.

It is reported, and probably based on excellent authority, that renegade physicians have been paid to go through the entire medical course of four years in order to obtain the degree and, of course, complete the conspiracy when supplying that same photograph to State Boards of Medical Examiners. To obviate this possible fraud and to insure identification of the licentiate with the license, I believe it would be an excellent plan to compel state licenses to be so prepared that a photograph of the licentiate should be taken thereon. This would, doubtless, effectually stamp out the criminal practice of substitution or impersonation.

HENRY BEATES, JR.

Georgia October Report.—Dr. E. R. Anthony, secretary of the Board of Medical Examiners (Regular), reports the written examination held at Atlanta, Oct. 9, 1906. The number of subjects examined in was 10; total number of questions asked, 50; percentage required to pass, 75. The total number of candidates examined was 27, of whom 26 passed and one failed. The following colleges were represented.

PASSED.

College.	Year Grad.	Per Cent
Atlanta Med. Coll.*	(1898)	76
Atlanta Coll. of P. and S.	(1906)	79, 82
International Med. Miss. Coll.	(1906)	75
University of Kentucky	(1906)	79, 83
Louisville Med. Coll.	(1906)	83
Tulane University	(1906)	82
Marion-Sims Med. Coll.**	(1899)	80
Leonard Med. Coll.	(1906)	80
North Carolina Med. Coll.	(1906)	80
Miami Med. Coll.	(1905)	83
Jefferson Med. Coll.	(1903) 95; (1906)	82
Univ. of Pennsylvania	(1904)	81
Chattanooga Med. Coll.	(1906)	78, 80
Meharry Med. Coll.	(1905) 78; (1906)	76, 84, 86
Univ. of Nashville	(1905)	75
Vanderbilt University	(1906)	81, 84, 85
Memphis Hosp. Med. Coll.	(1906)	81

FAILED.

University of Georgia (1905) †

* United with Southern Medical College in 1898 to form Atlanta College of Physicians and Surgeons.

** United with Beaumont Hospital Medical College in 1901 to form Marion-Sims-Beaumont Medical College.

† Percentage not given.

Iowa December Report.—Dr. J. F. Kennedy, secretary of the Iowa State Board of Medical Examiners, reports the written examination held at Des Moines, Dec. 11-13, 1906. The number of subjects examined in was 8; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 5, of whom 2 passed and 3 failed. Fourteen reciprocal licenses were granted at this examination. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
College of P. & S., Chicago	(1906)	86
Tufts Coll. Med. School	(1903)	77

FAILED.

Keokuk Med. Coll., Coll. of P. & S.	(1906)	56, 69
St. Louis Coll. of P. & S.	(1906)	59

REGISTERED THROUGH RECIPROCITY.

College.	Year. Grad.	Reciprocity with.
Hering Med. Coll.	(1906)	Illinois
Rush Med. Coll.	(1905)	Illinois
College of P. & S., Chicago	(1905)	Illinois
Northwestern University	(2, 1905)	Illinois
Med. Coll. of Indiana	(1905)	Indiana
Keokuk Med. Coll., Coll. of P. & S.	(1892)	Nebraska
University of Michigan	(1906)	Michigan
Ensworth Central Med. Coll.	(1905)	Kansas
St. Louis College of P. & S.	(2, 1906)	Illinois
University of Nebraska	(1905)	Kansas
Jefferson Med. Coll.	(1904)	Maryland
McGill University, Quebec	(1889)	Minnesota

Indiana Reciprocity Report.—Dr. W. T. Gott, secretary of the Indiana State Board of Medical Registration, sends us a report of physicians licensed through reciprocity during 1906. The following colleges were represented:

College.	Year. Grad.	Reciprocity with.
College of P. & S., Chicago (1902) Wisconsin	(1905)	Illinois
Rush Med. Coll. (1905) Wisconsin	(1902)	Kansas
Iowa College of P. & S.	(1898)	Iowa
Chicago Homeo. Med. Coll.	(1882); Nebraska; (1888)	Iowa
Kentucky School of Medicine	(1887) Kansas; (1889)	Kentucky
Louisville Medical College	(1890)	Kentucky
Hospital Coll. of Med., Louisville	(1897)	Kentucky
Baltimore University	(1899)	Maine
University of Michigan	(1902)	(1905) Michigan
St. Louis Coll. of P. & S.	(1903)	Iowa
Bellevue Hospital Med. Coll.	(1876)	Illinois
Med. Coll of Ohio	(1878) Illinois; (1882)	Ohio
Toledo Med. Coll.	(1905)	Illinois
University of Wooster, Cleveland	(1888)	Ohio
Ohio Med. University	(1905)	Ohio

Georgia Reciprocity Report.—Dr. E. R. Anthony, secretary of the Board of Medical Examiners (regular), sends us a report of physicians licensed through reciprocity during 1906. The following colleges were represented:

College.	Year Grad.	Reciprocity with.
Columbian Univ., Washington, D. C.	(1902)	Dist. Colum.
University of Maryland	(1906)	Maryland
Cincinnati Coll. of Med. and Surg.	(1889)	Indiana
Univ. Coll. of Med., Richmond	(1903)	Virginia
Medical Coll. of Virginia	(1901) (1905)	Virginia

Discussions

LICHEN PLANUS OF THE ORAL MUCOSA.

(*Continued from page 562.*)

DISCUSSION.

DR. L. DUNCAN BULKLEY, New York City, said that a few years ago lichen planus was described as an affection which was confined to certain areas, especially the hands and wrists. More recently, a further study of the subject has shown that the eruption may involve all parts of the body. Dr. Bulkley said he believes that he was the first to describe two cases in which the affection was observed on the glans penis before involving any other part of the body. The lesions in those cases were characteristic, and had existed for some months before the patients sought treatment. Lesions finally developed elsewhere on the body, and there could be no mistake in regard to the diagnosis. He has since seen a number of similar cases. Occasionally he has observed the lesions on the tongue and inside of the mouth, as well as on other mucous surfaces. Dr. Bulkley said that arsenic is one of the most valuable remedies to control the lesions of lichen planus, provided it is taken in full doses and continued for a sufficiently long time. How the drug acts is not known, but it certainly has some controlling influence over the development of the lesions. The fact should be borne in mind, however, that every case of lichen planus does not improve with the use of arsenic, and in some instances it even aggravates the affection. Cases have to be treated more or less along general lines. He called attention to a method of treatment introduced thirty years ago or more by the elder Dr. Boeck of Norway, who regarded lichen planus as a disease of suboxidation, and on empirical grounds suggested the use of chlorate of potash in from 5 to 10 grain doses, taken directly after meals, and followed in the course of half an hour with 5 or 6 drops of strong nitric acid, well diluted. Dr. Bulkley said that he is strongly convinced of the value of this treatment, and has resorted to it in many cases with the greatest degree of success. Later in the course of the disease it may be necessary to give arsenic, or the arsenic can be alternated with the chlorate of potash and nitric acid.

DR. JAMES C. WHITE, Boston, asked Dr. Lieberthal if he had noticed whether the lesions in the mouth showed any tendency to maceration.

DR. HENRY G. PIFFARD, New York City, said that the chlorate of potash and nitric acid treatment of lichen planus, to which Dr. Bulkley referred, was introduced about 25 or 30 years ago by Dr. Robert W. Taylor (*Archives of Dermatology*, January, 1875).

DR. DAVID LIEBERTHAL, Chicago, said that it was a well-known fact that acute lichen planus will not heal under the use of arsenic. Besides other cutaneous symptoms, arsenic produces hyperemia and exudation, especially in places which are the seat of pathologic changes. Therefore, it not only does not beneficially influence acute lichen, but, on the contrary, sometimes acts unfavorably. Dr. Lieberthal said that he would regard acute lichen planus as an acute dermatitis, and treat it accordingly. In reply to Dr. White's question, he said that there was no maceration, in the strict sense of the word, in any of the lesions. The lesions on the cheek at a certain stage were somewhat flattened, and looked as if they might be the seat of some maceration.

A SERIES OF AFFECTIONS TREATED BY ARTIFICIAL AUTOINOCULATION.

(*Continued from page 577.*)

DISCUSSION.

DR. L. HEKTOEN, Chicago, said the idea which underlies therapeutic inoculations in infectious diseases is by no means new, although we owe our present interest in this method of treatment to the recent efforts of Dr. Wright. In 1833 a German physician wrote a monograph in which he supported the idea expressed in the title that all contagious diseases contain in their contagion the materials necessary for their healing. He called attention to precautions which should be borne in mind when we judge the results of therapeutic inoculation. The cases that are treated by this method are comparatively few, isolated, and relatively scattered, so that it will take a long time before we can have adequate material for statistics from which accurate deductions can be made, such as, for instance, in a disease like diphtheria. Many of these diseases that are being treated with therapeutic inoculations sometimes undergo rapid, mysterious or spontaneous cures. In support of this statement he referred to an instance of furunculosis in a physician who presented himself for treatment some time ago. In order to prepare himself for the treatment, the physician thought it best that he should go home. When he arrived home the disease disappeared spontaneously. Now, if this patient had received one single inoculation we would naturally have attributed the result to the effect of the inoculation. The beneficial results obtained in many cases of tuberculosis must also be judged with this idea in mind. Speaking of tuberculosis, he began the treatment of this disease according to Wright's method, under the guidance of the opsonic index, nearly a year ago. During the succeeding time he has had perhaps 15 cases of various forms of tuberculosis under treatment. Two of these cases are regarded as cured. One is a case of abdominal tuberculosis; another, a case of tuberculosis of the sacro-iliac joint, with fistulous tracts. In both of these a symptomatic cure has been fully established. The sinuses have all healed. These patients have received no other treatment than tuberculin injections at intervals of 10 to 12 days, guided by the opsonic index, the doses being 1/1000 mg. of Koch's new tuberculin. In these cases the improvement was synchronous with the administration of the tuberculin, and the general impression obtained by those who have followed the cases is that the treatment has produced very marked and beneficial effect. He has had two cases of urinary tuberculosis, one of which has been under treatment for several months. In this case there has been very marked general and local improvement. The tuberculin was administered in the same manner as mentioned, and was followed by prompt subjective improvement, namely, by fall of temperature, by diminution in the frequency of urination, etc. The tubercular process involved the base of the bladder and the beginning of both ureters. These lesions have subsided, so that at present nothing can be felt by the examining finger. The second case of urinary tuberculosis has not been under treatment sufficiently long to make any definite statements about it. A case of tubercular peritonitis has been treated in the hospital with tuberculin inoculations, and there has been marked local and general improvement; but it is too early to pronounce definitely as to what the final result will be in this case. More recently he has taken up the study of the streptococco index in patients with scarlet fever. It has been found that the streptococco-opsonic index pursues a rather critical course. In the beginning of the disease it is below normal; then at about the eighth or tenth day it rises above normal, not very high, four-tenths to five-tenths, then gradually falls to normal again. When glandular involvement takes place in the neck, in the course of the disease, it is signalized by a fall in the opsonic index, and as the improvement takes place, continuously or otherwise, the index rises. One or two cases have been treated with streptococcal vaccine, and there was a marked immediate beneficial effect on the glandular infection.

DR. L. L. MCARTHUR, Chicago, confined his remarks very largely to the clinical aspect of the opsonic index and opsonic theory as applied to tuberculosis. It is applicable to practi-

cally all infections, but it is a method of treatment which requires trained assistants, particularly in the chronic type of infection, such as tuberculosis, before one can determine the time for the added dose. This necessitates making various blood counts, stainings, etc. In the course of the past three or four months he has had under his care some 30 odd cases of tuberculosis. The first of these had been under his care for months and even years, and these under such therapeutic measures as the essayist has mentioned have very decidedly improved. Some of them have been symptomatically cured. He passed around some cards which showed the dates and actual readings of the capacity of the leucocytes to take up bacteria, as well as the opsonic index for six months' time. A decided gain in case of tuberculosis is this: It is no longer necessary to give a patient anything in order to make a probable diagnosis in the extremely doubtful cases as to whether there is tuberculosis or not, for by taking some of the patient's blood and testing it outside of the body it is possible to determine whether his index is low or not. It has been his experience, without failure, in every case of positive tuberculosis, to find the opsonic index below normal. He asked Dr. Ohlmacher whether in any case of gonorrheal arthritis he has obtained a successful culture from the joint he has aspirated for the purpose of making an autogenous vaccine. In these infections it is considered that the fluid of the joint is fairly free from the organisms, and they are found beneath the synovial membrane much as in cases of purulent urethritis, gonococci are found beneath the mucous membrane of the urethra in the submucous tissue. He believes we are at the threshold of a great advance.

DR. JOHN C. HOLLISTER, Chicago, said that when one spends two or three weeks in Wright's laboratory at St. Mary's Hospital, in London, and attends his clinic in the afternoon, which is held two or three times a week, and follows the progress made in the clinical aspect of cases in that short time, he is impressed with the results obtained by Wright's treatment. If we take the series of cases reported by the essayist, and the series of 34 cases reported by Turtin and Parkin in the *Lancet*, Oct. 27, 1906, the results are universally good. In other words, the essayist had brought before the society a systematic therapy that has wrought universal improvement in the class of cases mentioned. The opsonins, which are physico-chemical bodies, so act on the invading microörganism as to make the organism more subject to phagocytosis, to the taking up of that microörganism by the polymorphonuclear leucocytes. Wright has developed a method for increasing the opsonic power of the serum. The entrance of the germ increases the opsonic power of the serum. Why, it is not known. In a joint article by the speaker and Dr. McArthur they have reported eight cases of surgical tuberculosis in conjunction with Bier's cupping apparatus in which the results thus far have been encouraging. In surgical treatment to-day it is very essential to combine a general surgical technic with not only the Bier cupping apparatus in passive hyperemia, but with the vaccine treatment, such as Wright has advocated. As to local reaction, the injection of tuberculin has no local reaction. In the injection of staphylococcus he has found almost universally that a small area is tender, swollen, attended with pain in the arm or in the axilla. As to a general reaction, they have given, up to within the last three weeks, all their cases tuberculin without any general reaction, except in one or two cases. He reported a good result in a case of cervical Pott's disease, with fistula.

DR. R. W. MCCLINTOCK, Chicago, gave the results of his experience in treating cutaneous pus infections. He has treated in the last year about 18 cases, and 10 of them have resulted in satisfactory clinical cures. One was a complete failure. This was a case in which the opsonic index was low to begin with, and the administration of the first dose resulted in such an aggravation of the symptoms that the patient refused further treatment. As a rule, he has made from four to five determinations of the opsonic index in each case and has depended on the clinical results and clinical picture to tell him the dose he should use. This treatment is too promising to be restricted to tuberculosis. He believes that every practitioner, with laboratory experience, can use this method successfully.

DR. M. HERZOG, Chicago, said that the opsonins do not act on the leucocytes, but on the bacteria, making the bacteria susceptible of being taken up by the leucocytes. So by opsonic index is meant a relative figure which expresses how many bacteria are taken up by the leucocytes. The principle of the opsonic treatment depends on how many questions can be formed, how many opsonins can be taken up by the bacteria, and how many bacteria can be taken up by the leucocytes. One of the co-workers of Dr. Hektoen has shown that virulent pneumococci do not take up any opsonins, and hence can not be taken up by the leucocytes. The index for virulent pneumococci can not be increased. If that can be shown experimentally, how can we expect, by injecting another antitoxin or vaccine into the body, to so affect the leucocytes that they will take up pneumococci, if we have no means of increasing the opsonic index? He considers it nothing short of miraculous that Dr. Ohlmacher secured such a splendid result as he did in a case of pneumococcus infection. He inquired as to what the opsonic index was in that case.

DR. L. HEKTOEN, Chicago, said there is a tendency to overemphasize, in our therapeutic inoculations, the fact of the opsonins. When we inject a bacterial vaccine we increase the other reactive products in the body as well as the opsonins. What Dr. Herzog has said with reference to virulent pneumococci in the test-tube is correct. The same thing is true of other animal virulent bacteria; but when we vaccinate against pneumococci we may produce other substances besides opsonins that beneficially affect the infection. We may produce something which, for the moment, destroys the power of the virulent pneumococci to resist opsonins. There may be a point here we have not yet been able to unravel.

DR. A. P. OHLMACHER, Detroit, said he was much pleased with what Dr. Hektoen said concerning the streptococcal effects of scarlet fever, and he felt from the little work he had done in regard to streptococcic cellulitis and scarlet fever that there is a field of usefulness for opsonic therapy in the latter disease. He emphasized the necessity of using smaller doses of streptococcic vaccine than seems to be the custom. He thought many mistakes have been made in connection with the treatment of acute pneumonia by using pneumococcus vaccine in which the dose has seemed to be unusually large. As to the work in tuberculosis, the taking of the opsonic index is a matter of more importance than it is in connection with many other infections. On the other hand, the tuberculo-opsonic index of tuberculosis is more difficult from the technical standpoint. As to the results obtained, considering the difficulty of making an emulsion of the tubercle bacillus and in getting results from the various emulsions, he had not felt entirely secure; nevertheless, he had treated several cases, one in particular, a case of genito-urinary tuberculosis, with progressive betterment. Another case of diffuse pulmonary tuberculosis had responded very favorably to five injections up to the present time. An autogenous vaccine is the best, as a rule, if we can obtain it. In reply to a question about the strain of gonococcus, put by Dr. McArthur, he said the particular vaccine he is working with was obtained from a strain that he had under cultivation ever since a year ago last September. He has succeeded in keeping alive two strains for that period, one of which gave an effective vaccine, while the other did not. He has worked with more recent ones, one having been isolated for a period of six weeks, but it did not give satisfactory results. Finally, two or three times he has obtained the gonococcus from the patient and reintroduced it. Whether the adaptation of this particular strain to the medium has something to do with the success of the vaccine or not, he was not sure. But the gonococcus is an organism which excites a violent reaction when injected in the form of a vaccine. He desired to impress the fact that the opsonic valuation is not imperatively necessary, at least in the common acute, subacute and chronic infections. In tuberculosis it is more important. A practitioner, competent otherwise by laboratory training, should not hesitate to use bacterial vaccines, because he may not be able to make a sufficient number of opsonic determinations. This, he had learned, is Wright's own view concerning staphylococcus infections. When we have chronic acne we

have, perforce, a low staphylococco-opsonic index. When a patient's lesions are aggravated, there is a negative phase. When the lesions improve, and the general condition improves, there is a positive phase, and whenever temporary improvement abates somewhat it is time to intervene. He has found some patients who seem to learn unconsciously that fluctuations occur, and they report for treatment often spontaneously. As to the interval between treatment, he thought seven to ten days might be taken as an average for the ordinary subacute and chronic infections. For tuberculosis, he was quite convinced that Dr. Hollister is right when he says the injections should be made at shorter intervals. As to how the pneumococcus acts, that question is at the foundation of the theoretical discussion of opsonic therapy, and it can not yet be answered. Personally, he did not feel that Wright's theory of opsonins explains wholly the phenomena that follow therapeutic inoculations. He thought, as Dr. Hektoen has suggested, we will find other substances besides the one we are now pleased to style opsonins that are important in this connection. But we should not hesitate to give humanity the benefit of this new method of treatment because we do not know how the pneumococcus vaccine acts on virulent pneumococci.

SYMPOSIUM ON MILK FEEDING.

(*Continued from page 590.*)

DISCUSSION

ON PAPERS OF DRS. BROWN, TOWNSEND, BROWN AND LOWENBURG.

DR. C. F. WAHRER, Fort Madison, Iowa, said that any paper, no matter how scientific it may be, when clouded by details that are unnecessary and too complex to follow, except in well-appointed hospital laboratories, must necessarily fail of the object an essayist has in mind. A consensus of opinion on the essentials of milk modification and infant feeding by well-known authors, omitting such details as every practitioner must of necessity supply in each individual case, would lead to far greater results among those who compose the rank and file of physicians, than all the algebraic formulas devised to date. Experience has proved that all such formulas, aside from being too complex, are incorrect, judging from published formulas of more recent date.

DR. S. M. HAMILL, Philadelphia, said that the result of the work of the Elmira commission should act as a stimulus to those living in smaller cities and towns. He has been secretary of the Philadelphia Pediatric Society Milk Commission for a number of years and has a very fair appreciation of the value of that commission to the city of Philadelphia. His experience has taught him how difficult it is for the best equipped dairies to furnish good milk without the supervision of a milk commission. A case in point is that of one of the Philadelphia hospitals which substituted for a very poor milk, which it had been using, the product of one of the best equipped dairies of Philadelphia, a dairy owned by a member of the board of mangers of the hospital. On examination by the bacteriologist this milk was found to contain many millions of bacteria to each cubic centimeter. That was milk produced in a dairy provided with the most modern equipments and presumably carefully prepared, and yet the lack of supervision which resulted in the failure to carry out the minor details of dairy farming led to these atrocious results. In the examination of the dairies which have applied to the commission for certificates it has been found invariably that the bacterial content of the milk is in the hundred thousands, and not until these dairies have been under the direction of the commission for some time have they been able to come within the commission's requirements. Home modification of milk for an ordinary dairy is a very uncertain proposition. The percentage of fat obtained from the top milk should be known. The fact is lost sight of that milk coming from large herds, since the cows are milked in groups, may represent five or six different milk mixtures with great variation in the percentage of fat. The only way to standardize the fat contents of the milk of a herd is by studying the fat content of the individual cows and then so to distribute them as to make the fat content of the milk of the groups milked separately as nearly even as possible. It is often necessary to have the herds rearranged before a milk of fairly even fat content can be obtained. At best there is always a variation of from ½ to 1 per cent. from day to day.

DR. J. W. KYGER, Kansas City, Mo., said that it is a notorious fact that the milk supply of the smaller cities, and, indeed, of many of the larger cities, is exceedingly bad. Kansas City, with 350,000 inhabitants, has no milk inspection of any value, and the character of the milk furnished the people is certainly very bad. By stimulating interest by the appointment of milk commissions much good will be done throughout the entire country. All the members returning from the meeting to the small cities, he said, should certainly look after this matter. Certified milk not only in regard to solids, but in regard to the bacteriologic count, will be of immense benefit. Milk commissions produce competition among dairymen, which is the only way to have them interested. As demonstrated by Dr. Kerley, Dr. Kyger believes that starch can be digested much earlier than has been supposed. Further, milk is one of the very best agents for the cultivation of bacteria. He has been in the habit of using cereal mixtures much earlier than has been recommended, and believes that the muscles of the stomach can be developed as the muscles of the arm are developed.

DR. W. G. MURPHY, Hartford, Conn., related the experience of a milk commission of the Hartford County Medical Society in 1897, which was the third county medical society to establish a milk commission. Two farmers were secured to supply certified milk. The herd of one was high-grade Jerseys, that of the other Ayrshires. A 10,000 per c.c. bacterial count was established and a certificate was to be given to the farmer obtaining this standard. The commission immediately got into hot water. If one farmer reached a standard of 10,000 and the other was higher, the one with the good results complained if the commission did not take the certificate away from the other. Next month the second farmer might have a good record and the other not. The commission had trouble with the physicians, finding they would use the high-grade milk for a short time and then drop to cheaper milk. The dairies were not supported as they should be. The work, however, is progressing. Dairymen are adhering to the requirements of the milk commission, although not under its control, and the work has had a good effect on the general milk supply of Hartford. It is well not to attempt too much; get one good dairyman, Dr. Murphy said, and work with him. It is not possible for a milk commission to reconstruct the whole milk supply of a city.

DR. MELINDA K. GERMANN, Quincy, Ill., agreed with Dr. Lowenburg in his reference to the physician instructing the mother in the home modification of milk, and asked him how fat and proteid indigestion in artificial feeding can be recognized.

DR. ROBERT W. HASTINGS, Brookline, Mass., said that it is desirable to start with a whey mixture in the feeding of the infant, adding cream as seems best and reaching a certain proportion of whey and cream which shall make the ideal food for that baby. This is safe, simple and perfectly practicable. Of course not every child will find this the best modification. Whether or not the whey and cream agree with the baby may well be decided by the simple methods laid down by Dr. Lowenburg.

DR. C. G. KERLEY, New York City, agreed with Dr. Townsend in giving cereal mixtures at the sixth month, as he can feed babies better when cereals of some kind are added at about that period. He happened to be in Elmira at the time of establishing the milk commission and knew something of the difficulties which Dr. Brown encountered in establishing a certified milk supply. It is good missionary work to start a milk commission in any city. It invariably improves the general character of all the milk produced in the locality. He is particularly interested in Dr. Lowenburg's success with dispensary patients in milk feeding. The general idea is that the reverse is true in dispensary service. Dr. Kerley has had very satisfactory results in working along these lines. Physicians should take the trouble to teach patients the principles of milk feeding. In feeding very delicate children in families

who can afford the very best laboratory preparations Dr. Kerley uses whey. With a well conducted laboratory and following out the methods suggested by Dr. Lowenburg very few cases will need wet-nurses.

DR. S. M. HAMILL, Philadelphia, said that his experience with whole milk and fat-free milk has been different from that of Dr. Townsend. Frequently he has been able to feed infants on fat-free milk and cream combined when he could not feed them on cream and whole milk mixtures.

DR. THOMAS MORGAN ROTCH, Boston, said that almost everyone interested in infant feeding indulges in a new formula. As a mathematical production, Dr. D. R. Brown's formula is exceedingly good, but it is not the way to get simplicity in infant feeding. Dr. Rotch said first judge what percentage the infant needs and then calculate it in the way one finds best. Some physicians may not believe in using the whey mixtures by which the proportions of whey proteid and caseinogen are altered so as to resemble those of human milk, but Dr. Rotch believes in this method appropriately used. A large number do believe that no matter what is said about simple methods many of them are sufficiently accurate to modify milk satisfactorily. The whole root of the matter is to find out what a baby needs and to write the prescription for it. He hopes that in the future there will be laboratories just as there are now apothecary shops, so that physicians can write for the percentages the babies need. To attempt to interfere with physiologic truths and to educate an undeveloped function to perform its work before Nature has intended, he said, is not a true principle. Most physicians think that mother's milk is a pretty good food for babies. Dr. Rotch believes it is the best food for the first year of life, if it is good mother's milk. In all these years of direct feeding from breast milk, Nature has not introduced starch into mother's milk at the fourth month, and yet breast milk remains the best food. Therefore in substitute feeding, he asked, why call on the function to carry on its duties before Nature has intended it to? He does not claim that the men who use certain cereals ought not to do so. It is perfectly right for them to do so, but there are many others who are following rather more closely Nature's methods in not giving cereals in the early months. They believe they get along much better without them. Yet the experience of one man must not be underrated. Dr. Kerley's method must be taken fully into consideration. Dr. Rotch declared that it is better not to force a function before it is ready to be used, not to bring in the use of cereals thinking they are better than mother's milk; that the physician should think in percentages, write in percentages, find out what especial percentages of the fat, sugar, proteid, etc., the baby needs and get them by any method of calculation that is most convenient to his individual type of mind.

DR. D. R. BROWN, Salem, Mass., said that it is somewhat difficult to demonstrate the mathematical principles on which the calculation of percentage mixtures depends, and at the same time to show the simplicity of the percentage method. He is well aware of the intolerance of mathematical formulas, but, to insist that the substitute food shall contain definite percentages of the food elements, and then say that formulas, which express in the simplest possible way the necessary operations, are of interest only to the mathematician, that it makes no difference whether they are accurate and adequate, or not, is inconsistent. Without accurate computation, there can be no "accurate method." In all the published formulas, certain analyses have been assumed for the cream and milk employed; cream and milk of other than the assumed analysis can not be computed accurately by these formulas. The percentage method, therefore, has never been established on a mathematical basis. The "working formulas," which Dr. Brown did not have time to show, yield, he said, satisfactory results.

DR. C. TOWNSEND, Boston, said he wished to make himself clear on the matter of cereal dilution. Generally, he thinks that babies after six months are better for cereals. Very often he begins with cereal dilution before that age and sometimes uses it with the new-born, notwithstanding the fact that Dr. Rotch states that there are no cereals in woman's milk. Unfortunately, woman's milk and cow's milk are very different not only in the percentages of their ingredients, but also in the ingredients themselves.

DR. C. W. M. BROWN, Elmira, N. Y., said that he is glad that the idea of the milk commission commends itself to the members of the Section. Those who have discussed it, however, are all from the large cities. His appeal was to the representatives of the smaller ones. From the standpoint of the general practitioner he spoke in regard to the question of infant feeding. He became specially interested in it after more than twenty years' practice. He listened to the teaching of several men. He read all the articles in the English language on this subject and whenever he came to an article containing mathematical formulas he was puzzled. Perhaps, he said, he has what Dr. Claiborne calls "figure amblyopia." He is sure that all such things cloud knowledge. From the standpoint of the general practitioner a fundamental knowledge of the principles underlying infant feeding is needed, a knowledge of the kind and quality of the food which normal infants at different ages need and are able to digest; and, more than that, a statement of the symptoms, so far as can be gained from a study of the baby and from the character of the stools, whether or not there is fat digestion, proteid digestion, etc. Each one must apply this knowledge for himself. Everything must be made simple and plain so that mothers as well as physicians can understand it. Besides the nursing bottle marked for ounces and half ounces, Dr. Brown uses a pint graduate, many times nothing except the graduated nursing bottle, and succeeds fairly well.

DR. H. LOWENBURG, Philadelphia, objected to the chart of Dr. C. W. M. Brown because it is not needed. It is just such mathematical curiosities as this, he said, that prevent many practitioners from adopting percentage feeding. He believes with Dr. Townsend that one of the most important things in securing a successful formula is to secure a clean milk with which to work. The less milk is handled on the farm, the sooner cooled and the better iced the better it is for the infant. He said that fat indigestion is recognized by vomiting occurring from half an hour to an hour after feeding. The vomitus is sour and smells like rancid butter. Diarrhea and sometimes constipation occur. This latter condition has recently been emphasized by Holt. The fat can be differentiated from the curds by its solubility in ether, its floating on water and by the fact that it is blackened by osmic acid. Proteid indigestion is diagnosed by green stools, curds, mucus and usually a foul diarrhea. Sometimes the stools are constipated and white. Sugar indigestion is rare and is characterized by an acid diarrhea and excoriation of the anal region. In adding cream to whey the latter should be heated first, otherwise the cream will be curdled. However if heated above 158 F. the lactoalbumin will be coagulated. He has used whey mixtures in hospital work more than in private practice. He agreed with Dr. Brown of Elmira as to the necessity for simplicity in infant feeding.

Medicolegal

Waiver of Privilege by Administrator and Others.

Section 4608 of the Iowa Code provides that no physician or surgeon shall be allowed, in giving testimony, to disclose any confidential communication properly intrusted to him in his professional capacity, and necessary and proper to enable him to discharge the functions of his office according to the usual course of practice. Such prohibition shall not apply to cases where the party in whose favor the same is made waives the rights conferred. The Supreme Court of Iowa says, in Long vs. Garey Investment Company, that, ordinarily, an administrator or executor represents the deceased. In most controversies he acts in his stead, as in prosecuting or defending claims for or against the estate, and as a proponent of will. The heirs or devisees may also waive the privilege in such a contest. But the privilege can not be waived by the appointee as beneficiary under an insurance policy. Nor can it be waived by any one not in some way representing the patient or his

interests. And the court says that in an action by an administrator to set aside conveyances of land, as bearing on the issue of the decedent's inability to execute the instruments, the administrator so far represents the deceased that he may waive the privilege of the patient by calling the physician to testify concerning communications made to him as such. But in so far as the action rests on allegations of fraud, the testimony of the physician should not be considered, for an administrator in such a case does not represent the deceased or his interests.

Request and Promise to Pay for Operation Inferable.

The Appellate term of the Supreme Court of New York holds, in the case of Pryor vs. Milburn, that where there was evidence that a surgeon had performed an operation for pay on a patient at a hospital about three days prior to the operation for which compensation was sought, that the last operation was absolutely necessary "on the chance" to save the life of the patient, and that the patient was operated on as claimed, this evidence warranted an inference of a request on the part of the patient to have the operation performed, with an understanding that a reasonable compensation would be paid for the performance of it.

Court Not Sure Woman of 60 May Not Bear Children.

The Court of Appeals of Kentucky says, in Bailey's Trustee vs. Bailey, where there was a woman 60 years old, whose husband was alive, and, so far as the record showed to the contrary, was a vigorous man, that it is unable to concur in the conclusion that, because the woman had arrived at the age of 60 years, it was impossible that she should thereafter bear children. It says that it knows of no rule, either in law or nature, for such a conclusion; but, on the contrary, very high authority can be cited against it: Gen. xvii, 17; Gen. xxi, 2.

Insane Delusions and Testamentary Capacity.

The Supreme Court of Iowa says, in the will case of Hardenburgh vs. Hardenburgh, that while it is true that the existence of insane delusions shows a diseased condition of the mind, it is still true that a person thus afflicted may be entirely sane on all other subjects, so that, although one afflicted with insane delusions can not be said to be posessed of an entirely sane mind, it can not be said that he is generally insane or of such mental incapacity as to disqualify him from making a valid will. But it is the general rule that insane delusions existing in the mind of a testator will render invalid a will which is the direct offspring of such delusions, although the general capacity of the testator remains unimpaired.

Taking Exercise and Not Seeking Medical Aid—Carrying Sick Person Beyond Destination.

The Supreme Court of Wisconsin says, in the case of Nelson vs. Chicago & Northwestern Railway Company, an action brought to recover damages for carrying the plaintiff, when sick, beyond his destination and leaving him at another point, that it was claimed that he was guilty of contributory negligence in attempting at the latter station to walk about and omitting to procure the aid of a physician. But it did not appear that either he or his friends understood the nature of his physical condition, or were apprised that he was suffering from a brain lesion accompanied by cerebral hemorrhage. He was not informed that his condition required immediate medical attention. He believed that the physical exercise taken by him was conducive to his improvement. Under such circumstances his failure to seek medical advice and assistance at that point and his conduct in walking about the place did not in themselves so clearly show negligence on his part that the court could so declare it as a matter of law, and the determination of the question required submission to the jury, on all the evidence in the case, which found in his favor. Furthermore, the facts of the plaintiff's affliction having been brought to the attention of the trainmen, who were informed that he desired to get home for care and treatment, and were requested to put him off at his destination, the court says that it seems obvious that, under such circumstances, an ordinarily prudent person would know that a sick person must necessarily be injured to some extent from the excitement incident to the worry, disappointment and mental strain, and the additional physical exertion required for the extra travel, his stay among strangers at the hotel, and the delay in receiving proper rest, care and medical attention.

Responsibility of Physician or Surgeon—Bad Results Not Conclusive of Malpractice—Expert Evidence.

The Supreme Court of Oklahoma holds, on the appeal of Champion vs. Kieth, an action for malpractice brought by the latter party, that a physician or surgeon is never considered as warranting a cure, unless under special contract for that purpose. His contract as implied by law is that he possesses that reasonable degree of learning, skill and experience which is ordinarily possessed by others of his profession, that he will use reasonable and ordinary care and diligence in the treatment of the case which he undertakes, and that he will use his best judgment in all cases of doubt as to the proper course of treatment. He is not responsible for damages for want of success, unless it is shown to be the result of want of ordinary skill and learning, such as ordinarily possessed by others of his profession, or for want of ordinary care and attention. He is not presumed to engage for extraordinary skill or for extraordinary diligence or care, nor can he be made responsible in damages for errors in judgment, or mere mistakes in matters of reasonable doubt or uncertainty. This rule of responsibility is treated in many different ways, but the above, the court thinks, substantially gives the rule in a succinct form.

In this case the plaintiff, while handling a sack of grain in a flouring mill where he was working, turned suddenly, and his hip gave way. The defendant was called to attend him. There was no attempt to show that he did not possess that reasonable degree of learning, skill and experience which is ordinarily possessed by others of his profession. The effort was to show that he did not use reasonable and ordinary care and diligence in the treatment of the case; in other words, that he did not properly diagnose the case, and treated it as one for dislocation, when he should have observed that there was a fracture, and treated it as such. But it appeared that at the time he called another physician of experience and standing to aid him in consultation and making an examination of the injury, and the two made a thorough examination, and arrived at the conclusion therefrom that the thigh was dislocated, and thereupon set the same, and placed it in a plaster-of-Paris cast, and afterward both physicians visited the patient three or four times until he moved away from the city. Moreover, it appeared that in making the diagnosis as to the injury sustained and the subsequent treatment thereof, every precaution was taken and every method used which other surgeons possessed of a reasonable degree of learning, skill and experience would have used under like circumstances, though the treatment was not successful, and resulted unsatisfactorily. The court holds that such evidence did not establish a case of negligence on the part of the attending physician, and did not show a failure on his part to use ordinary skill, care and attention; and, further, that, under such circumstances, he was not responsible in damages for want of success.

Even admitting that there was a mistake in the diagnosis of the case, still the evidence, in the court's opinion, failed to establish negligence. It says that it might be here observed that even if the testimony of the plaintiff showed that there was in fact a fracture, which the court does not think it did to any reasonable degree of certainty, still the examination having been made long after the injury, and at the time when all of the witnesses admitted that a better and more satisfactory examination could be made than at the time of the injury, it would be the subject of some criticism on that ground. Again, the court says that it might be noticed that the testimony of expert witnesses, in cases of this kind, is only at best opinionative; there is usually nothing in it very definite or conclusive. Opinionative testimony is never more than merely persuasive.

It did not follow, because the treatment resulted unsatisfactorily, that, therefore, the surgeon was negligent. The court thinks it is a matter of common knowledge that in very many cases of like injuries, as well as others, under the most skilful treatment, Nature fails to respond properly, and the result is permanent injury. It also knows that some persons recover

readily from injuries that are the most serious; in fact, cases that seem at first to be almost if not quite hopeless, while others fail to recover from very slight injuries. This is not because of any want of skill or of the negligence of the surgeon, but it is because of the inherent recuperative power in the patient on the one hand and the lack thereof on the other.

In the trial of cases such as this one, courts should proceed with great care, as frequently there is liability that prejudice will creep into the minds of the jurors, and ofttimes a jury is liable to arrive at unwarranted conclusions; and from a reading of the entire record it would seem that such was the case here, as the record disclosed that the defendant was a reputable surgeon, possessing the ordinary skill and ability required, that he used the precaution of calling in an assistant with perhaps even more skill and knowledge than he himself possessed, that their examination was very thorough, that all precautions and appliances at their command were used, that the treatment given was proper and skilfully applied, and that the attendance afterward was diligent on the part of both surgeons, the result alone, however, being unsatisfactory. To hold the defendant liable in damages under such conditions would amount to a warranty of a cure, and this, too, a case treated on his part as one of charity, without any expectation of a fee or an intent to charge one.

Pictures Not Enjoinable.

The Supreme Court of Illinois says, on the appeal of Christian Hospital vs. People, ex rel. Murphy, that certain facsimilies of certificates of membership in the staff of the hospital were ornamented with a picture which apparently represented the lecture room of a medical school where surgery was taught. The picture was oval in shape, 1¼ inches high at the widest place and 2¼ inches long. There were tables in the front, with some persons standing around. Back of the tables there appeared to be an amphitheater filled with people, and there were about 40 people in the picture. The largest figure in the foreground, standing by the table, was alleged to be that of the complainant, and the head of that figure was not larger than a hemp seed. The faces of the spectators seated in the amphitheater were no larger than pin heads. There were affidavits that the largest picture represented the complainant, and that it would be recognized as his picture by his acquaintances. It seemed that his features could be distinguished in the picture by persons who knew him, but it was clear that there would be no implication from the picture that he was in any way connected with the hospital. The mere publication of this picture would not be an act for which he could obtain an injunction.

Dropping of Tooth Into Lung.

The Court of Appeal of the Second District of California says that it was alleged in the complaint in the case of McGehee vs. Schiffman that the defendant had extracted seven teeth and removed all of the same from the plaintiff's mouth excepting one tooth, which, by the defendant's carelessness, negligence, and unskilfulness, was permitted and allowed by him to drop and pass into the plaintiff's right lung, without any fault or negligence on her part. It was contended that this was insufficient in that the negligence averred was not the proximate cause, for the reason that it was manifest that the plaintiff, having control over her own muscles and breathing apparatus, the tooth by any negligence or omission of the defendant could only have been allowed to escape into the mouth, and that it should reach the lung comprehended action on the plaintiff's part which would be the proximate cause of the injury; that, if there was an unbroken sequence of events through which the injury was chargeable to the defendant, those continuous events should have been pleaded; that the complaint was uncertain in that it could not be ascertained how or in what manner any carelessness on the part of the defendant occasioned the injury, nor how the defendant by any act or omission of his could permit or allow the plaintiff's tooth to drop or pass into her right lung. The court, however, regards the complaint as sufficient, and in no sense as ambiguous or uncertain. It also thinks that there was evidence in the record sustaining findings that the defendant carelessly and negligently permitted and allowed a tooth to drop and pass into and down the plaintiff's windpipe, and thence into the plaintiff's right lung, without fault on her part, by reason of which she was damaged. Among other things this evidence tended to show that an anesthetic was administered, that when the plaintiff regained consciousness she was strangling and coughing as though she were choking, and she felt as if some foreign substance had gone through her windpipe, that she continued this coughing and became sick, that an abscess formed in the lower lobe of the lung and quantities of yellow pus were expectorated, that afterwards during a fit of coughing, a tooth was expelled from the lung, that before she entered the defendant's office to have these teeth extracted she was in perfect health, that thereafter she was continuously under the care of a physician, but began to improve after the tooth was expelled. On the other hand, there was no evidence in the record that the defendant took any precaution to discover whether any of the teeth or any fragments thereof had not been removed from the mouth. But there was evidence tending to show that, notwithstanding the plaintiff's coughing and giving every evidence of having some foreign substance in her windpipe, no attention was paid to her by the defendant, and no effort made to ascertain the cause of her unusual condition. There was, therefore, the court says, competent evidence tending to establish the averments of the complaint, not only as to the negligence, but as to the proximate cause of the injury. A judgment for the plaintiff affirmed.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

Boston Medical and Surgical Journal.
January 31.

1 *Trypsin Treatment of Cancer. W. P. Graves, Boston.
2 Instruction in the Physiology and Hygiene of Sex in Public Schools. H. C. Putnam, Providence, R. I.
3 *Can a Specific Disease Be Aborted? J. M. French, Milford, Mass.
4 *Ancient and Modern Ideas Concerning Tuberculous Adenitis. H. F. Stoll, Hartford, Conn.
5 Chloral Delirium. H. W. Mitchell, Danvers, Mass.

1. **Trypsin Treatment of Cancer.**—Graves reports four cases of recurrent cancer of the breast in which this treatment was carried out systematically and the results were typical. The cases were inoperable; the patients were in good general health. Graves began with 10 minims of the undiluted trypsin solution, and after two or three treatments increased this to 40 minims three times each week. Severe constitutional reaction was observed only once. Graves sums up his experience as follows: First, a discrete cancerous node systematically attacked by injections of trypsin shrinks and becomes hard and fibrous or disappears. Second, neighboring nodes are little if at all affected, and are probably influenced only when the trypsin comes into actual contact with the growing cells. Third, the treatment of a given node causing it to shrink or disappear does not prevent the appearance later of another node in immediate proximity to it. Fourth, there is no evidence in these cases to show that trypsin affects cancer cells by circulating in the blood, or that it affects them in any way except by direct contact. Fifth, the internal administration of the various ferments of the pancreas is of benefit to cachectic patients; but there is nothing to show that this benefit is due to anything else than the assistance given to the intestinal digestive secretions of the individual patient. Sixth, the direct action of trypsin on growing cancer cells as shown clinically and microscopically, is sufficient warrant to continue the treatment in inoperable cases, especially in view of the fact that there are apparently no serious results that can occur from its use.

3. **Abortion of Specific Diseases.**—French says that although it is generally conceded that specific diseases can not be aborted, yet the use of antitoxin in diphtheria and the results obtained controvert this belief. If this be true, French asks, may it not also apply to pneumonia, typhoid, malaria, syphilis, gonorrhea, rheumatism and tuberculosis.

4. **Tuberculous Adenitis.**—Stoll believes that an earlier diagnosis of tuberculous lesions and a keener appreciation of what can be accomplished by the fresh-air treatment will materially diminish the number of cases in which operative interference is indicated.

New York Medical Journal.

February 2.

6 *Common Misconceptions in the Pathologic Physiology of the Circulation and Their Practical Significance. T. C. Janeway, New York.
7 *Surgical Application of Blood Examinations. J. B. Deaver, Philadelphia.
8 Age Limitations of Sports. H. Toeppen, St. Louis.
9 *Early Diagnosis of Pulmonary Tuberculosis With Special Reference to Symptoms. W. H. Coffmann, Asheville, N. C.
10 *Immediate and Remote Consequences of Cranial Injuries, Based on Histories, which Illustrate the Extradural, Subcortical and Intermeningeal Types of Intracranial Hemorrhage. H. Cushing, Baltimore.
11 *Case of Urethrovesical Calculus Weighing 845½ Grains. S. E. Earp, Indianapolis, Ind.
12 Modified Endoscopic Tube and Endoscopic Lacunar Knives. F. Bierhoff, New York.

6. **Pathologic Physiology of Circulation.**—Janeway emphasizes the importance of making a complete medical study of the pulse rate and blood pressure in every case of acute infectious disease, claiming that much useful information bearing on treatment may be obtained in this way.

7. **Surgical Application of Blood Examination.**—Deaver finds blood examinations of considerable value but urges that more than one blood count should be made before coming to a conclusion because the leucocytes vary greatly with the pathologic progression of the disease under consideration. To avoid error, he believes it essential that the blood counts on the same patient should always be made by the same examiner.

9. **Early Diagnosis of Pulmonary Tuberculosis.**—The symptoms and signs discussed particularly by Coffmann are hemoptysis, cough, fever, shortness of breath, pleural pains, evidences of functional derangement of digestion and the presence of a red or livid line at the margin of the gums. He says that a tuberculin test is indicated only when other methods of inquiry and examination have failed. He states that the truly early stage case will more often be found accidentally or when the physician is especially alert and extends his inquiries further than is usual in ordinary medical practice. The patient's early history is of great importance. In 256 cases cough was the first symptom in 114; loss of weight and strength in 50; hemoptysis in 20; pleurisy in 18; easily induced fatigue in 14; various disturbances on the part of the nervous system in 10; disturbances of the digestive organs in 8; symptoms attributable to laryngeal involvement in 4, and night sweats in 3 cases. Coffmann says that in the hands of very skilful and practiced observers the Roentgen ray as an aid in diagnosis can at most be one of greater or less degree of confirmation, and the method has no differential import. In the early deposits of tubercle in the lungs there is no real consolidation, hence no shading in the fluoroscopic picture can be expected. When the disease has caused alterations to a degree that the fluroscope will indicate them, there are auscultatory signs and percussion changes in evidence.

10. **Consequences of Cranial Injuries.**—The third case in the series reported by Cushing was one of an old penetrating bullet wound of the skull involving the left frontal lobe. The patient suffered from attacks of epilepsy with vocal aura. The bullet was extracted, the adhesions were separated and the cortex was stimulated by faradization. The patient recovered from the operation and although he was much improved subjectively, his epileptic attacks continued.

11. **Urethrovesical Calculus of Large Size.**—In the case reported by Earp about two inches of the lower portion of the calculus occupied the distended urethra. The patient was a woman, 47 years old, who had suffered from bladder disturbance for about five years. For three years there was retention of urine but it was impossible to pass a catheter on account of the obstruction. A physician was not notified of this fact. Finally the calculus, weighing 845½ grains, was passed spontaneously. The stone was three inches long and its greatest diameter was 1⅛ inches.

Medical Record, New York.

February 2.

13 *The Interlude of Cancer. J. Beard, Edinburgh, Scotland.
14 *Theory of the Toxic Origin of Pernicious Anemia. A. W. Hollis and N. E. Ditman, New York.
15 *The Electric Psychometer. F. Peterson, New York.
16 *Medical Expert Testimony. G. F. Shiels, New York.
17 *Varicose Veins of the Lower Extremities and Their Treatment. P. T. O'Connor, Waterbury, Conn.

13. **Interlude of Cancer.**—Beard outlines the course and nature of his scientific work and conclusions since the spring of 1888. He says that the theories of epigenesis, somatic origin of germ cells, and recapitulation in development are fading away into thin air before the mighty powers of evolution with predestination, an actual tangible continuity of germ cells from generation to generation, and an antithetic alternation of generations as the only possible mode of animal development. Beard believes that without doubt cancer is hereditary. He says that this is abundantly borne out by clinical histories which he has in his possession. According to his belief, the proper scientific treatment of cancer is the enzyme or pancreatic one. The preparations used should be potent extracts, scientifically prepared from the fresh gland direct. Beard classifies tumors into three groups: Embryomata (benign neoplasms); amprimixomata (malignant neoplasms, combinations of embryomata and trophoblastomata); and trophoblastomata (cancer and sarcoma).

14. **Toxic Origin of Pernicious Anemia.**—Hollis and Ditman describe various experiments carried on by others in the search for knowledge concerning the toxic origin of pernicious anemia.

15. **Electric Psychometer.**—Peterson gives a recapitulation of Tarchanoff's experiments. In his own work he uses a Deprez d'Arsonval mirror galvanometer and a horizontal glass scale placed about one meter from the galvanometer to which the lamp is attached. The light shines on the mirror from which it is reflected to the scale. Here the light travels to and fro, marking the fluctuations in the organism of the individual experimented on. As a rule, the galvanometer is put into circuit with one or two Bunson cells and a rheostat, the patient's hands making contact on copper plates on clasping nickel-plated brass electrodes. In order to affect the instrument the emotions excited must be actual and real. The patient is required to respond to any word uttered with the first word that comes into his consciousness. Indifferent words produce no effect on the finger of light in the psychometer, but words exciting emotion send the light along the scale for a varying distance in proportion to the intensity and actuality of the emotion aroused.

16. **Medical Expert Testimony.**—Shiels believes that expert medical evidence could be of the greatest value in upholding justice if it were properly introduced. He suggests two plans: (1) Let the attorneys of each side select two experts and let the four thus chosen choose a fifth. These five men could, after mature deliberation, present a full and useful report on any technical points considered by them. Or (2), the matter could be left in the hands of the court, who could call one or a dozen medical men to elucidate without prejudice any technical points that might arise in the trial. Shiels favors the plan in which the court has control.

17. **Treatment of Varicose Veins.**—O'Connor believes that it is not alone the greater degree of surgical skill and dexterity that determines success in the management of these cases, but that a factor of equal importance appears to be the aseptic precautions necessary to be carried out before, during, and after manipulation.

Lancet Clinic, Cincinnati.

January 26.

18 Present Status of the Roentgen Ray. S. Lange, Cincinnati.
19 Was the Emperor Napoleon Sane or Insane During the Last Dozen Years of His Life, and if Sane was He Morally Responsible? A. N. Ellis, Maysville, Ky.
20 Clinical Indications for Cesarean Section. W. Schell, Terre Haute, Ind.

February 2.

21 Early Recognition of Acute Intestinal Obstruction and Prompt Surgical Intervention. J. A. Johnston, Cincinnati.
22 What to Do in Persistent Obscure Abdominal Symptoms. H. H. Grant, Louisville.

Illinois Medical Journal, Springfield.

December.

23 Future Progress in Surgery. D. W. Graham, Chicago.
24 *Problems in Appendicitis. H. N. Rafferty, Robinson, Ill.
25 *Some of the Complications and Emergencies in the Surgical Treatment of Ovarian Cystoma. G. L., Eyster, Rock Island.
26 Nutritional Background of Adolescence. F. P. Norbury, Jacksonville.
27 Arthritis Deformans. E. W. Ryerson, Chicago.
28 Subjective Symptoms of Eye Strain and Their Effect on the Pupils' Work. A. L. Adams, Jacksonville.
29 Modern Conceptions of the Metabolism of the Diabetic. R. W. Webster, Chicago.
30 *Modern Dining Car. M. Cavana, Oneida, N. Y.
31 Prognosis and Surgical Treatment in Traumatic Ruptures of the Kidney, Ureters and Bladder. W. Fuller, Chicago.

January.

32 Traumatic Ruptures of the Intestines and Stomach; Their Prognosis and Treatment. E. W. Andrews, Chicago.
32½ Treatment of Diffuse Suppurative Peritonitis. J. A. Blake, New York.
33 *Duties and Obligations Relating to Tuberculosis. C. W. Lillie, East St. Louis.
34 Importance of Specialties in Educational Centers. J. Price, Philadelphia.
35 *Case of Leprosy. E. A. Fischkin and E. C. Seufert, Chicago.
36 *Leprosy in the United States and the Policy to be Pursued in Regard to It. W. A. Pusey, Chicago.
37 Lumbar Lordosis. M. S. Marcy, Peoria.
38 Treatment of Inoperable Malignant Tumors—Carcinoma. J. M. G. Carter, Waukegan.
39 *Multiple Sclerosis With Report of a Case. J. Grinker, Chicago.

24 and 25.—See abstracts in THE JOURNAL, June 23, 1906, page 1965.

30. **Modern Dining Car.**—Cavana calls attention to the danger of toxicosis from eating undrawn poultry and cites a number of instances in which the patrons of dining cars were poisoned in this way. He says, that the time for the consideration of present cold-storage methods and their health and life-destroying results is at hand. The protection of the railway dining car and the safety of its patrons and the general public, is the prize at stake. The profession ought to put forth its best efforts to procure such legislation in the several states as will compel, by law, as thorough and complete dressing, cleaning, and preparation of game and poultry for storage and the market, as is now practiced by the slaughterers of beef, pork and mutton, and thus safeguard the masses from the dangers of health and life, which must follow continued indifference toward this situation.

33.—See abstract in THE JOURNAL, June 9, 1906, page 1786.

35 and 36.—See abstracts in THE JOURNAL, Dec. 8, 1906, page 1945.

39. **Multiple Sclerosis.**—Intention, tremor, scanning speech, nystagmoid movements, exaggerated reflexes, Babinski sign, transient motor and sensory palsies, attacks of vertigo, insignificant objective sensory disturbances, slight and transient sphincter trouble, remission and intermission of symptoms, absent abdominal and cremasteric reflexes—are symptoms that make Grinker's case one of the typical Charcot type of multiple sclerosis, and besides, satisfy the demands of modern authors. Grinker says that the question of trauma as a cause in this case can be disposed of by recalling that the first symptom—an external rectus paralysis—occurred one year prior to the fall. If any influence is to be attributed to the trauma at all, it can only be that of hastening the latent processes and not of actually causing them. Grinker claims that strychnin, iodids, arsenic, iron and other so-called tonics do not seem to act beneficially. The best single drug for palliative treatment he has found to be sodium bromid, in doses of from 15 to 20 grains, three times daily. It has a tendency to relieve the extreme nervousness and often gives the patient a feeling of greater security in walking.

Detroit Medical Journal.

January.

40 The Physician as a Character in Fiction. C. B. Burr, Flint.
41 *Nitrous Oxide Gas. W. Warren, Detroit.
42 *Chloroform and Ether. C. S. Oakman, Detroit.
43 Study of Infant's Stool. P. Selter, Solingen, Germany.

41. **Nitrous Oxid Gas.**—Warren's experience with nitrous oxid anesthesia has been entirely confined to its use for operations on the tonsils and the removal of adenoid vegetations from sixty-six patients. The youngest of these was about three years and six months old, and a few of them have been above twenty-five years of age. In some of the small patients, with limited pulmonary capacity, the anesthesia has been very brief, apparently not over thirty-five seconds in duration. In patients over 10 years of age, however, the anesthesia generally lasts from forty-five to fifty seconds, and usually affords ample time for the removal of both tonsils and adenoid growths. Warren has never noted any ill effects from inspiration of blood or tissue.

42. **Chloroform and Ether.**—Oakman says that the margin of safety is narrow with chloroform and wide with ether. Chloroform is a powerful drug and dangerous. Ether, while comparatively innocuous, is yet not an agent to be trifled with, and there should be a united effort to promote greater skill in its administration.

Washington Medical Annals, Washington, D. C.

January.

44 Combat of Scientific Medicine With Superstition. J. D. Morgan, Washington, D. C.
45 First Fifty Cases of Tuberculosis Treated at Starmont Sanatorium. Surgeon-General, G. M. Sternberg, U. S. Army.
46 Simple Retinitis. R. S. Lamb, Washington, D. C.
47 Postoperative Complications Connected With Kidney and Ureter. G. B. Miler, Washington, D. C.
48 Typhoid Fever; Perforation, Operation, Recovery. C. S. White, Washington, D. C.
49 Partial Review of Internal Medicine. C. N. Howard, Washington, D. C.
50 *Case of Friedreich's Disease. W. L. Robins, Washington, D. C.
51 Two Cases of Cerebrospinal Meningitis. E. E. Richardson, Washington, D. C.
52 Hypernephroma of Kidney; Nephrectomy. I. S. Stone, Washington, D. C.
53 Case of Aortic Regurgitation and Floating Liver. E. P. Magruder, Washington, D. C.
54 Case of Hodgkin's Disease or Tuberculosis. T. A. Groover, Washington, D. C.

50. **Friedreich's Disease.**—Robins reports one case and analyzes two recorded cases. Of the 100 cases studied, 67 per cent. began at or below the age of 12. In 80 of these 100 cases more than one case of this disease was found in the same family. In only 6 cases was there direct hereditary transmission. The mental condition was probably normal in all but 7 cases. Of the 13 cases in which the expression of countenance was mentioned practically all the patients presented a dull torpid appearance. Two cases were reported to follow an injury to the head. In 2 cases there was probably a history of syphilis. There was a marked alcoholic history in one or other parent in 14 cases, and in a grandparent in 4 cases. In 2 cases the father had phthisis, and in one case the mother was phthisical. In 8 cases the parents were cousins. Ten cases followed closely on measles or scarlet fever or both. Five other cases followed such diseases as remittent fever, whooping cough, dysentery and rheumatism. A history of insanity was found in 3 cases. In one case the father suffered from migraine, and in one case the mother had chorea. The mother of 3 patients died of cancer of the liver. Choreiform or jerky movements of the head and trunk were marked in 51 cases. Of the 25 cases in which special mention of unsteadiness was made, probably 18 patients showed inability to maintain the erect position with the eyes closed; and many of the latter number were unable to stand unsupported with the eyes open. The Romberg symptom was recorded as present in only 3 instances. The knee jerks were absent in 71 and diminished in 5 cases. They were recorded as exaggerated in only 6 cases. All deep reflexes were recorded as absent in 3 instances. In a large majority of the cases no mention was made of any of the deep reflexes other than the patellar tendon. The Babinski sign was present in 3 cases.

Concerning the superficial reflexes, which are not especially important in this disease, the plantar, cremasteric and abdominal were present in 23 cases. In a few instances the superficial reflexes were absent. The plantar reflex was exaggerated in 5 cases. Of the 55 cases in which the condition of the feet was given, 47 showed more or less characteristic deformity. The condition of the spine was spoken of in 64 cases. Of this number 48 showed lateral curvature, the location of which, in a large majority of cases, was in the dorsal region. Antero-posterior curvature was present in four cases. In 12 instances speech was not affected. Of the 70 cases in which there was affection of speech, perhaps the difficulty would best be described by the words "slow," "drawling," "slurring," "indistinct," and "jerky" or "ataxic." In only two cases was the speech considered to be of the

"scanning" type. There was specific mention of some loss of motor power in the legs in only 20 cases. In most of these cases there was no atrophy whatever. In 78 cases ataxic symptoms began first in the lower extremities; and in only 6 cases did they begin in the upper extremities. Several cases were doubtful.

Of the 51 cases in which mention was made of the sphincters, 42 showed the bladder and rectal sphincters to be normal. There was a slight incontinence of urine in four cases, and micturition was delayed in 5 cases. In 23 cases the gait was described as "staggering or drunken;" in 19 as "ataxic;" in 11 as "unsteady, awkward or jerky." In a few cases the gait is called "shuffling or reeling." The field of vision was practically normal in all cases cited. Nystagmus was reported as present in 51 cases and absent in 20. Lateral nystagmus was specifically mentioned in 29 cases. Sensation was practically normal in 41 cases; in many cases no mention was made of it. Muscular sensibility was diminished in 6 cases. There was diminution of heat, pain and touch in only 4 cases. Pains or cramps in the legs were present in 6 cases; lightning pains in 2; dull backache in 2; and girdle sensation in only one case. Vertigo was decided in 2 cases; faintness and giddiness in 4 cases. In 2 cases there was syncope.

Archives of Pediatrics, New York.

January.

55 *Relapses in Typhoid Fever of Children. H. Koplik and H. Heiman, New York.
56 Teaching of Scientific Infant Feeding. H. D. Chapin, New York.
57 *A New Siphon Aspirator. F. Huber, New York.
58 Paralysis of Abducent Nerve Following Influenza. A. S. Wilner, New York.
59 Case of Septic Endocarditis with Recovery. W. C. Gardner, New York.
60 Treatment of Scarlet Fever. I. L. Polozker, Detroit.

55. **Relapses in Typhoid.**—Koplik and Heinman analyze 24 relapses which occurred in 160 cases of typhoid and concluded that relapses in typhoid fever are more common in children than in adults. The mortality is exceedingly low. The usual duration of a relapse in a child is from one to two weeks. As a rule the temperature is continuously high between a rapid rise at the onset and a rapid fall to normal at the termination of the relapse. A constant symptom in addition to the prolonged temperature elevation is about 75 per cent., leukopenia in about 60 per cent. of relapses in children. Complications in these cases are mild and infrequent. For the prediction of a relapse no reliable signs are furnished by the character of the interpyrexial period nor by the course, duration and severity of the original attack. Persistent enlargement of the spleen after defervescence occurs in a fair proportion of relapse cases; and a relapse following a mild primary illness is not as likely to be repeated as one occurring after a severe original attack.

57. **New Siphon Aspirator.**—The appliances described by Huber for use in pleural effusions are said to be simple, convenient and inexpensive. For more than 20 years it has been the practice of Huber to use the Dieulafoy as a means of siphoning the fluid from the pleural cavity in the following way: After the needle has been inserted, two or three ounces are slowly drawn off in the usual manner and allowed to remain in the glass barrel. The outflow cock is now opened, a steady flow is established at once, the *vis a tergo* being supplied by the expanding lung. The apparatus, it is understood, must be on a lower plane than the chest. The serous or seropurulent fluid escapes without the necessity of any further manipulation. An ordinary aspirating or explorating syringe, about 3¼ inches in length, holding about one-half ounce (the lower fitting replaced by a cap provided with two stopcocks), is employed as a substitute in place of the elaborate glass cylinder with the rack and pinion action of the Dieulafoy apparatus.

Journal of Nervous and Mental Disease, New York.

December.

61 Relation of School Work to the Mental Fatigue of Children. B. Sachs, New York.
62 A Definite Clinical Variety of Cerebral Arteriosclerosis. J. Collins, New York.
63 Vision Fields in Cases of Indirect or Incomplete Lesions of the Optic System. C. K. Russel, Montreal.
64 Connective Tissue Character of the Septa of the Spinal Cord as Studied by a New Stain. A. R. Allen, Philadelphia.

January.

65 *Pseudo-Hypertrophic Muscular Atrophy. C. E. Ingbert, Independence, Ia.
66 Myopathy of Distal Type and Its Relation to Neural Form of Muscular Atrophy. W. G. Spiller, Philadelphia.
67 Consciousness in Brutes. G. V. N. Dearborn, Boston.
68 Peripheral Obliterating Arteritis as Cause of Triplegia Following Hemiplegia. C. W. Burr and C. D. Camp, Philadelphia.

65. **Muscular Atrophy.**—The histopathologic findings in a case reported by Ingbert add support to the conclusions of other investigators that pseudo-hypertrophic muscular atrophy is primarily a disease of the muscles, and that the changes in the spinal cord and in the spinal nerve roots are secondary.

Virginia Medical Semi-Monthly, Richmond.

January 11.

69 Medical Reminiscences of Richmond During the Past Forty Years. J. N. Upshur, Richmond.
70 Prison Sanitation. C. V. Carrington, Richmond.
71 Calculous Cholecystitis Simulating Appendicitis. G. G. Holladay, Portsmouth.
72 Hysteria. D. P. Hickling, Washington, D. C.
73 Typhoid Fever; General Considerations. B. H. Hite, Hollydale.
74 *Mosquito Theory of Malarial Diseases—Is It True? T. J. Taylor, Cochran.
75 Plea for Castration to Prevent Criminal Assault. J. Ewell, Ruckersville.
76 Contusions of Abdominal Wall. C. W. Roller, Staunton.

74. **Mosquito Theory of Malaria.**—Taylor questions the etiologic relationship believed to exist between the mosquito and malaria. He says that if it is true, as claimed by scientists, that malaria can not exist unless the particular variety of mosquito is there to propagate it, it is one of the most remarkable facts in the whole domain of natural history. He can not understand why this one variety of gnat, with exactly the same internal organs, the same food, habits and habitat as other gnats, should alone be able to develop the malarial parasite. He says further, that there are numerous and incontestable facts which do not coincide with the present theory of the origin and propagation of malaria. There are regions of the earth, high and dry, which afford no breeding places for mosquitoes, yet some of these regions, he states, are intensely malarial.

Colorado Medicine, Denver.

January.

77 Mind Cure; Its Service to the Community. R. C. Cabot, Boston.
78 Early Diagnosis and Treatment of Tabes Dorsalis. G. E. Neuhaus, Denver.
79 *Wright's Latest Opsonic and Bacterial Vaccine Work. G. B. Webb, Colorado Springs.

79. **Opsonins and Bacterial Vaccines.**—Webb presents what is known of the opsonic theory as promulgated by Wright and reviews several very interesting cases that have been published by Wright. He also points out the value of the opsonic index in reference to the effect of exercise in tuberculous patients.

American Journal of Obstetrics, New York.

January.

80 *Nature of Shock. E. Boise, Grand Rapids, Mich.
81 A Surgeon's Criticism of Gynecology. C. W. Barrett, Chicago.
82 *Technic of Fixation of Floating Kidney, With Reference to Longyear's Ligament. C. A. L. Reed, Cincinnati.
83 Anterior Vaginal Celiotomy: Its Technic, Indications and Limitations. S. W. Bandler, New York.
84 *Preservation of Vault in Vagina in Pelvic Operations. A. Vander Veer, New York.
85 *Observations and Experiences Respecting Symptoms and Treatment of Atresia Vaginæ. A. P. Clarke, Cambridge, Mass.
86 Abortions. J. A. Hall, Cincinnati.
87 Perineal Tears. J. E. Cannaday, Hansford, W. Va.
88 Difficulty Encountered with Fetal Arms in Breech Labor. F. Reder, St. Louis.

80. **Nature of Shock.**—Boise believes that the circulatory conditions of shock are essentially and primarily a condition of tonic or spasmodic contraction of the heart, with probable coexistent contraction of the arterioles. Boise reports his experiments on animals in full.

82.—See abstract in THE JOURNAL, Sept. 29, 1906, page 1045.

84 and 85.—See abstracts in THE JOURNAL, Oct. 13, 1906, page 1220.

Albany Medical Annals.

January.

89 *Production of Cytotoxic Sera by the Injection of Nucleoproteids. R. M. Pearce and H. C. Jackson, Albany.
90 *Chemistry of Atheroma and Calcification (Aorta). L. K. Baldauf, Albany.
91 *Action of Certain Drugs on the Elimination of Uric Acid During a Nitrogen—Free Diet. H. C. Jackson and K. D. Blackfan, Albany.

92 *Experimental Myocarditis; Study of Histologic Changes Following Intravenous Injections of Adrenalin. R. M. Pearce, Albany.
93 *Production of Vascular Lesions in the Rabbit by Single Injections of Adrenalin. R. M. Pearce and L. K. Baldauf, Albany.
94 *Experimental Production of Liver Necrosis by Injection of Hemagglutinative Sera. R. M. Pearce, Albany.
95 *Regenerative Changes in the Liver. R. M. Pearce, Albany.
96 *Liver Necrosis and Venous Thrombosis in Horses Actively Immunized with Diphtheria and Tetanus Toxins and with Streptococci and Their Products. H. D. Pease and R. M. Pearce, Albany.
97 *Affections of the Thyroid Gland. G. E. Beilby, Albany.
98 *Puerperal Infection. E. McDonald, Albany.
99 Embryonic Glandular Tumors of the Kidney. H. W. Carey, Albany.
100 *Tuberculosis of an Adenomyoma of the Uterus. J. L. Archambault, Albany.
101 *Four Instances in which Giant Cells Occurred in Unusual Situations. N. K. Fromm, Albany.
102 Spontaneous Amputation of an Appendix Contained in a Femoral Hernia Sac. F. G. Schaible, Albany.
103 Case of Exfoliative Cystitis. J. F. Robinson, Albany.
104 *Malaria with General Distribution of the Plasmodia. A. T. Laird, Albany.

89.—See abstract in THE JOURNAL, Nov. 24, 1906, page 1766.

90.—See abstract in THE JOURNAL, Dec. 1, 1906, page 1854.

91. **Action of Drugs on the Elimination of Uric Acid.**—Jackson and Blackfan have performed a very extended series of experiments for the purpose of determining the action of alcohol, colchicum and sodium salicylate, on elimination of uric acid during a nitrogen-free diet. After personal experience, they decided that for their taste the daily diet most adapted to prolong general use was the following:

Grams.	Calorific value.
250 arrowroot	957.0
140 pure cane sugar	504.4
50 butter	450.0
100 fat in the form of 250 c.c. of 40 per cent. cream	900.0
Sodium chlorid to taste	2,811.4

This mixture formed a pudding which was flavored with various kinds of extracts and fruits. From the thermodynamic standpoint the diet was found to be sufficient. The authors sum up the results of these investigations as follows:

1. The elimination of uric acid on a purin-free or nitrogen-free diet is not a constant value for the same individual.
2. There appears to be evidence that the elimination of creatinin may be altered by conditions other than that of the creatinin in the food.
3. Alcohol increases the output of uric acid during a nitrogen-free diet; there occurs a coincident diminution in the elimination of ammonia; the organic phosphorus pentoxid excretion is also increased.
4. Both colchicum and sodium salicylate increase the output of uric acid, along with which takes place an augmented excretion of organic phosphorus pentoxid.
5. These facts seem to indicate that the rise in the uric acid elimination is caused by an increased formation as a result of augmented decomposition of nuclein-containing compounds of the cell.
6. From this it seems reasonable to decide that any agent which tends to cause an increased production of uric acid in the organism and thereby to increase its amount in the blood, must be contraindicated in those conditions where there exists a tendency for a deposition of urates to occur (gout). Probably the temporary beneficial effects of salicylates and colchicum observed clinically are the results of some secondary action possessed by them. That no permanent benefit results must be due to the fact that they are contraindicated.

92 and 93.—See abstracts in THE JOURNAL, Dec. 1, 1906, page 1854.

94 and 96.—See abstract in THE JOURNAL, Oct. 13, 1906, page 1227.

95.—This article also appeared in the *Journal of Medical Research*, Boston, July, 1906.

97.—See abstract in THE JOURNAL, June 23, 1906, page 1972.

98.—See abstract in THE JOURNAL, March 3, 1906, page 681.

100.—This article appeared in full in THE JOURNAL, Sept. 8, 1906, page 768.

101. **Giant Cells in Unusual Situations.**—Fromm found giant cells in the bronchi in bronchiectasis, in a carcinoma of the tongue, in a recurrent granulation polyp of the aural canal, and in the wall of a cyst of the broad ligament.

104. **Malaria with General Distribution of Plasmodia.**—In the case reported by Laird, the parasites were found in practically every organ, the spleen, liver, bone marrow, lungs, heart, kidney, pancreas, brain and blood vessels of the intestines. The pigmentation of the spleen, liver and brain was very marked.

Annals of Ophthalmology, St. Louis.

October, 1906.

105 Late Changes in Specific Chorioretinitis. J. Hirschberg and O. Fehr, Berlin.
106 Chorioidal Diseases: Their Relation to General Diseases. G. E. de Schweinitz, Philadelphia.
107 Therapeutic Application of Roentgen Ray in Diseases of the Eye. W. S. Newcomet, Philadelphia.
108 Surgical Treatment of Trachoma. G. S. Ryerson, Toronto.
109 Double External Rectus Paralysis, Traumatic in Origin. H. F. Hansell, Philadelphia.
110 Embolism of Clio-Retinal Artery: Loss of One Eye Through Gonorrheal Conjunctivitis; Endocarditis; Sequelæ of Gonorrheal Urethritis. W. Zentmayer, Philadelphia.
111 Operative, Postoperative and Traumatic Infections of the Eye. H. F. Hansell, Philadelphia.
112 Enucleation of Eyeball Under Local Anesthesia. H. D. Bruns, and E. A. Robins, New Orleans.
113 Report on the Eyes of Four Classes of College Freshmen at University of Pennsylvania. M. W. Zimmerman, Philadelphia.

Medical Library and Historical Journal, Brooklyn.

September, 1906.

114 The Hôtel Dieu of Paris—an Historical Sketch. E. N. La Motte, Baltimore.
115 A Sketch of Benjamin Rush. H. G. Webster, Brooklyn.
116 *A Forgotten Medical Worthy, Dr. Diego Alvarez Chanca, of Seville, Spain. A. M. F. de Ybarra, New York.
117 Supposed Warfare Between Medical Science and Theology. J. J. Walsh, New York.
118 German-American Influence in Medicine and Surgery. J. C. Hemmeter, Baltimore.
119 Biography of François Magendie. P. M. Dawson, Baltimore.

116.—This article appeared in full in THE JOURNAL, Sept. 29, 1906, page 1013.

The Physician and Surgeon, Detroit.

December, 1906.

120 Some Cardiac Arhythmias. L. C. Grosh, Toledo, Ohio.
121 Opsonins. E. B. Bradley, New York City.
122 Primary Basal-Celled Carcinoma of the Appendix. A. S. Warthin, Ann Arbor, Mich.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal.

January 19.

1 Fractures of the Base of the Skull. A. Bowlby.
2 *Intraperitoneal Implantation of Ureters into Colon. G. Barling.
3 *Transplantation of Ureter into the Bladder for Ureterovaginal Fistula. E. P. Paton.
4 Traumatic Rectovesical Fistula. H. T. Mursell.
5 *Microscopic Diagnosis of Tumors During Operations. C. B. Lockwood.
6 Etiology and Prophylaxis of Dracontiasis. R. T. Leiper.
7 Atoxyl in Treatment of Trypanosomiasis. A. Breinl and J. L. Todd.
8 *Treatment of Paralytic Talipes Valgus by Tendon Transplantation. B. Kilvington.
9 Papain in Malignant Growths. C. W. Branch.
10 Hydatid Cyst of Neck with Cellulitis Caused by Rupture and Escape of Hydatid Fluid. E. C. Bevers.

2. **Implantation of Ureters Into Colon.**—Barling reports the case of a young man, aged 20, who was suffering from fractured pelvis with ruptured urethra and laceration of the neck of the bladder. Exit for the urine was given by suprapubic drainage. A suppurating sinus led down to the back of the fractured pubic bone. The method of operation pursued in this case was as follows:

The ureter was found with little difficulty, and was lifted out of its bed for about an inch and a half, was divided low down, the lower end ligatured and pushed under the peritoneum, while the upper end was held lightly between finger and thumb to prevent leaking. The portion of bowel to be used was selected, and a puncture barely one-third of an inch long made on its inner side, the utmost care being observed to prevent any fecal soiling. The upper end of the ureter was threaded with a fine catgut suture, the needle attached to which was passed into the opening in the colon, across the bowel and through its opposite wall. By means of this suture the ureter was drawn inside the bowel, and held in position while a first row of interrupted sutures fixed the outer coats of the ureter to the margins of the incision in the intestine, and narrowed this opening up to the walls of the ureter, but without constriction. A second row of sutures approximated the peritoneal covering of the bowel to the outer coat of the ureter, and so secured rapid adhesion and seclusion. The suture through the wall of the colon to retain the ureter, while suturing fixed it, was then cut short and its point of exit secured by a single mattress suture. The colon was displaced somewhat toward the middle line, which relieved the ureter from tension and tended to return it to the bed of subperitoneal fat from which it had been disturbed, while finally the inner edge of the divided posterior peritoneum was sutured to the inner margin of the colon, thus giving further security against leaking. The wound was closed except for a small gauze drain.

The operation on the right side was rather more difficult than that on the left, as the small intestine was not so easily

pushed out of the way and the common iliac vein obtruded a good deal into the wound when the posterior peritoneum was divided.

3. **Transplantation of Ureter Into Bladder.**—In the case reported by Paton the operation devised by Hammerschlag in a case of uretero-cervical fistula, was employed successfully.

5. **Immediate Microscopic Diagnosis of Tumors During Operation.**—Lockwood states emphatically that freezing microtome should form an essential part of the equipment of an operating theater. He describes the procedure carried out in his service and cites a number of instances to substantiate his claim.

8. **Treatment of Paralytic Talipes Valgus.**—Three cases are reported by Kilvington to show that moderate degrees of this deformity are very suitable for treatment by tendon transplantation. He applies a tourniquet above the knee to prevent hemorrhage, and when possible, the transplanted tendons are fixed directly to the bone by silk sutures. He says that the decision as to the operation to be performed depends on the muscles affected, but that talipes valgus does not offer the same field for nerve surgery as do paralyses, involving the peronei or extensor muscles.

The Lancet, London.

January 19.

11 Diagnosis of Tumors of the Spinal Cord. F. E. Batten.
12 Skepticism in Therapeutics. A. H. Bampton.
13 *Opsonins and Treatment by Bacterial Vaccines. J. L. Bunch.
14 *Hemorrhagic Cyst of Spleen. W. L. Harnett.
15 *Relative Sizes of Maternal Pelvis and of Fetus in Europeans, Eurasians, East Indians and Bengalis. J. C. H. Leicester.
16 Fatal Case of Myxedema with Changes in Parathyroid Glands. D. Forsyth.
17 *Pyloric Stenosis and Condition of Pylorus During Life. C. W. Moullin.
18 *Abnormal Development of Esophagus. J. E. Spicer.
19 *Fat Necrosis. J. E. H. Sawyer.
20 Disseminated Sclerosis. Z. Mennell.
21 Diphtheritic Membrane Involving Pharynx, Esophagus and Respiratory Passages. F. E. Field.
22 Limitations of Medical Evidence. S. B. Atkinson.

13. **Opsonins and Bacterial Vaccines.**—Bunch reviews this subject generally and reports several instances in which these procedures were employed with great benefit.

14. **Hemorrhagic Cyst of Spleen.**—Harnett's patient gave a clear history of malaria. On admission a pulsating swelling having all the characters of an aneurism of the popliteal artery was present on the inner side of the left thigh just above the knee. The body was covered with a pustular rash and there was well-marked general arteriosclerosis. The liver and spleen were enlarged. Excision of the aneurism was followed by suppuration and death. The spleen was found converted into an enormous unilocular cyst which contained nearly a pint of dark-brown, turbid fluid which proved to be altered blood. Harnett believes that his case supports the view that these cysts arise from rupture of an intrasplenic vessel following, perhaps, the development of an aneurism.

15. **Size of Maternal Pelvis and Fetus.**—Leicester measured 941 pelves and weighed and measured 699 full-term children, the patients being Bengalis, Europeans, East Indians and Eurasians. As the result of this study he concludes that the proportion in weight and size of the child's head to the size of the pelvis through which it is born is by no means so strikingly regular as would appear from the measurements obtained by Lane, and certainly does not in any way seem to justify the enunciation of any law on the subject.

17. **Pyloric Stenosis.**—Moullin says that patients, unless warned, are likely to expect too much from gastroenterostomy done for pyloric stenosis. They should be told that while the gastroenterostomy will relieve the stenosis it does not in any way affect the condition which preceded the stenosis and which may continue after the stenosis has been divided. If the conditions of living which gave rise to the dyspepsia at first, when the stomach was healthy, are allowed to continue, they will give rise to the same results, after gastroenterostomy has been performed. When patients complain that their condition was not greatly improved by the operation, Moullin puts them to bed, physics them, and restricts them to a milk diet for a few days. He has never known a case in which the pain did not disappear immediately and recovery follow at once.

18. **Abnormal Development of the Esophagus.**—Spicer reports three cases of abnormal development of the esophagus due to mal-development of the tracheo-esophageal septum in the anterior part of the primitive esophagus. As a result, the upper part of the esophagus is found to end in a dilated cul-de-sac, while the lower opens above into the posterior wall of the trachea immediately above the bifurcation. The patients died twenty-two hours, six and nine days after birth, respectively.

19. **Fat Necrosis.**—Sawyer reports 8 cases, three of which have been published before. Three of them were associated with acute hemorrhagic pancreatitis, 2 with subacute pancreatitis, and one each with gangrenous pancreatitis, hydrochloric acid poisoning and mitral disease, respectively. Sawyer says that although some destruction of the pancreatic tissue seems to be a necessary factor in the production of fat necrosis, yet in cases of extensive disease of the pancreas, fat necrosis does not always occur. Three points in his cases seem to oppose Eppinger's view: (1) The areas of fat necrosis are sometimes seen just under the peritoneum and nowhere else, except in the immediate neighborhood of the pancreas, indicating that the ferment had escaped into the general peritoneal cavity; (2) the fat necrosis was observed in the edges of a laparotomy wound; and (3) the radiating appearance of the fat necrosis in one of the cases seems to point to direct extension from the pancreas.

Journal of Obstetrics and Gynecology of British Empire, London.

January.

23 *Tuberculosis of the Female Pelvic Organs. R. H. Lucy.
24 *Tuberculosis of the Cervix Uteri. E. E. Young.
25 *Treatment of Puerperal Sepsis by Active Disinfection of Uterus. A. K. Gordon.
26 Development of Uterus Bicornis. C. Lockyer.
27 Three Cases of Chronic Tuberculosis of the Fallopian Tube. A. W. W. Lea.
28 Case of Repeated Extrauterine Pregnancy, with Estimate of Age of Fetus from Appearances Shown in Roentgen Ray Photograph. J. Phillips.
29 Removal of Pregnant Uterus on Account of Fibroids Complicated by Fibroid of Round Ligament. John Campbell.

23. **Tuberculosis of Female Pelvic Organs.**—Lucy draws attention to certain causes of ill-health in the female which until recently had been but imperfectly understood, that is, tuberculosis affecting the different structures in the female pelvis, but chiefly tuberculosis commencing in the Fallopian tubes. The subject is discussed from a clinical standpoint, the author taking up the channels of infection, tuberculous salpingitis, tuberculous pelvic peritonitis, and tuberculosis of the bladder and of the uterus.

24. **Primary Tuberculosis of Cervix.**—Young reports the case of a married woman, aged 26, on whom a vaginal hysterectomy was done for primary deposit of tubercle in the cervix uteri. The only symptoms complained of were the presence of a thick yellow, inoffensive discharge from the vagina, and a constant aching pain in the lower part of the abdomen and sacral region. The patient had always been healthy, her husband was healthy, and no family history of tuberculosis could be obtained.

25. **Treatment of Puerperal Sepsis.**—Gordon describes a series of cases of puerperal sepsis in which he employed somewhat vigorous disinfection of the uterus, after thorough curettage, with most excellent results.

Intercolonial Medical Journal of Australia, Melbourne.

November 20.

30 The Opsonic Index as a Guide for Therapeutic Inoculation, with Some Results of Treatment by Vaccines. T. P. Dunhill.
31 Treatment of Bacterial Disease. J. Smith.
32 Early Signs of Tuberculous Meningitis. W. H. Summons.
33 Lumbar Puncture in Children. S. W. Ferguson.
34 Fracture of Larynx and of External Auditory Meatus. T. K. Hamilton.
35 Treatment of Extreme Infantile Paralysis of Lower Limb in Children. W. Mackenzie.

Annales de l'Institut Pasteur, Paris.

Last indexed, page 84.

36 (XX, No. 11, Pp. 881-975.) *Sterilization with Formaldehyd at High Temperatures. (Transformation reversible du trioxyméthylène en méthanal.) L. Perdrix.
37 Reversible Actions of Diastases. (Formation et dédoublement des éthers-sels sous l'influence des diastases du pancréas.) H. Pottevin.

38 *Spirillosis of Fowl Embryos, Compared with Inherited Syphilis in Man. (Spirillose des embryons de poulet dans ses rapports avec la Tréponémose héréditaire de l'homme.) C. Levaditi.
39 *Influence of Normal Serum on the Phagocytic Process. (Observations sur la phagocytose *in vitro*). M. Löhlein.
40 Albuminoids in Cheese. (Dosage de la matière albuminoïde non-transformée dans les fromages.) Trillat and Sauton.
41 Gangrenous Bovine Affection in Paraguay. (Maladie sphacellaire des bovidés du Paraguay.) Elmassian and R. Urizar.
42 (No. 12, Pp. 977-1070.) Action of Bulgarian Ferment on Milk. (Action du ferment bulgaire sur de lait; Yoghourt.) G. Bertrand and G. Weisweller.
43 *Process for Dosage of Albuminoids of Milk. (Matière alb. du lait. Nouveau procédé de dosage.) Trillat and Sauton.
44 Growth in Curves of Bacterium. (Des tropismes du "Bacterium zopfii" Kurth.) E. Sergent.
45 Dosage of Active Substances in Hemolytic Sera. (Etude des sérums hémolytiques.) L. Remy.

36. Advantages of Heat in Formaldehyd Disinfection.—Perdrix reports tests which prove that the amount of gas generated when formaldehyd is heated to 100 C. (212 F.) is 27 times greater than at 18 C. (64.4 F.), and at other temperatures in proportion. In disinfecting apartments, therefore, the process is immeasurably promoted by heating the rooms by every possible means. He states that it is an illusion to suppose that more than a certain proportion of the gas can be injected into a room at a given temperature. This proportion, however, can be increased at will by raising the temperature of the room. The white powder deposited occasionally on solid objects during formaldehyd disinfection at ordinary temperatures is a product of the polymerization of the gas and is known as trioxymethylene. By heating this substance it is possible to transform it back into formaldehyd gas, and this reversible transformation of trioxymethylene can be utilized in practical disinfection. Perdrix has devised an apparatus for the purpose with which remarkably effectual disinfection is realized from the transformation of trioxymethylene into formaldehyd gas by the action of heat alone. It consists of a copper cylinder with double walls, the space between the walls being filled with boiling water. The double front wall is pierced by large horizontal tubes opening into the inner cavity of the cylinder. In each of these tubes slides another tube the bottom of which is perforated and the top cut out to form an open drawer. These drawers slide in and out and hold the objects to be disinfected. The lower drawer holds the trioxymethylene from which the gas is generated by the action of heat. Each of the drawers when pushed in projects into the inner cavity, and the articles in them are thus bathed in the gas which enters through the perforations in the bottom. No odor of formaldehyd gas escapes from the apparatus. It can be working in a room for days with no odor to suggest its presence. The few grams of trioxymethylene placed at first in the apparatus have never had to be replaced during all his tests.

38. Spirillosis of Fowls Compared with Inherited Syphilis in Man.—Levaditi confirms his previous announcements that inherited syphilis is an acute or comparatively chronic spirillosis of the newborn infants of syphilitic parents, due to the presence of the *Treponema pallidum*, Schaudinn's spirochete. This treponemosis differs in certain respects from the other forms of spirillosis yet known in man and animals, but, on the other hand, the analogies between them are numerous. He injected hen's eggs with spirilla and found that they never developed unless the egg had been previously fertilized. The resulting infection produced conditions in the embryo remarkably similar to those observed in the congenitally syphilitic infant. Among other facts noted is the finding that Brazilian spirillosis is never transmitted by infected hens to their embryos, but the latter seem to be immunized against infection from the *Spirillum gallinarum*.

39. Phagocytosis in the Test Tube.—Löhlein reports tests of the influence of normal serum on the phagocytic process which confirms, he says, the assertions of Hektoen and Ruediger. He protests against the term "opsonins," as the substances thus styled are the same as those previously described by Metchnikoff under the name of "fixateurs." To avoid all confusion, however, he proposes to add to the term fixateur or sensibilisatrice the adjectives "phagocytic" or "bacteriolytic" to distinguish between the two kinds of sensitizing substances in normal and specific sera.

43. Dosage of Albuminoids of Milk.—Trillat and Sauton utilize the property possessed by formaldehyd of rendering albuminoids insoluble as a means of determining the proportion of albuminoids present in milk. Five c.c. of milk are diluted with 25 c.c. of distilled water and boiled for five minutes and then five drops of formol are added, and the whole is boiled again for two or three minutes. It is then set aside for five minutes and then treated with 5 c.c. of 1 per cent. acetic acid and stirred. The precipitate is filtered out and the filter and its contents are treated with acetone to remove the fat, then dried, and the precipitate is weighed. The addition of the ordinary preservatives to the milk does not affect the precision of the test, which is simple and deserves wide application, they think, for practical dosage of the albuminoids in milk.

Berliner klinische Wochenschrift.

46 (XLIII, No. 52, Pp. 1643-1666.) *Development of Our Knowledge of Ozena. (Entwickelung der Lehre von der Ozaena.) B. Fraenkel.
47 Medicolegal Value of Deviation of the Complement in Blood Tests. (Der Wert des Neisser Sachs' schen Verfahrens der Komplementablenkung.) A. Schütze.
48 *Measurement of Blood Pressure. (Blutdruckmessung bei Menschen.) H. J. Bing.
49 *Pseudo-spirochetes. (Zur Frage der Silberspirochæte.) W. Schulze.
50 Non-Use of the Voice in Treatment of Laryngeal Tuberculosis. (Schweigetherapie bei der Kehlkopftub.) Lubinski.
51 The Extra-Systole: Its Pathology, Diagnostic and Clinical Significance. (Extrasystole des Herzens.) A Bickel.
52 (No. 53, Pp. 1667-1678.) Free Receptors. (Freie Rezeptoren.) E. Weil and O. Axamit.
53 *Pseudo-Paralytic, Myasthenia Gravis. (Myasth. gravis pseudopar.) E. Sitsen.
54 *Relation of Meningococci to Gonococci. (Beziehungen der Men. zu den Gon.) L. Zupnik.

46. Ozena.—Fraenkel looks back over his 70 years and calls attention to the fact that his pioneer publications on the subject of ozena need scarcely any revision to-day. Little more is known than he taught years ago. He cites this fact to emphasize the need for further research in this line, adding that science progresses like a spiral, always upward and onward, although to a casual observer it seems to be at times retrogressing.

48. Measurement of the Blood Pressure.—Bing applied the Riva-Rocci apparatus with a cuff on each upper arm. The registered findings are tabulated as observed on a number of individuals. He affirms that the blood pressure measured by the ordinary clinical apparatus depends on the contraction of the vessels below the point of compensation. Changes in the lumen of these vessels are able to induce changes in the blood pressure without necessarily any corresponding changes in the pressure in the aorta. It is not the terminal pressure in the brachial artery which the apparatus measures; it measures the lateral pressure in this artery.

49. "Silver Spirochetes."—Schulze reaffirms on more extended experience that he has been able to inoculate rabbits with syphilis and, further, that in the successfully inoculated rabbit eye and also in human organs affected with syphilis he has constantly demonstrated the presence of Siegel's *Cytorrhyctes luis*. The more or less spiral elements found in syphilitic and non-syphilitic organs on application of the silver technic are nothing more nor less, he states, than tissue elements, generally terminal fibrils of the nerves. Neisser has also succeeded in inoculating rabbits with syphilis, the proof of the positive results being afforded by inoculation of monkeys in turn.

53. Pseudo-Paralytic Myasthenia Gravis.—Sitsen reports a case in full and tabulates the details of 29 others from the literature. In 9 cases the lymphatic system showed anomalies under the microscope, but autopsy was incomplete in most, and further research is needed, such as examining during life the blood and all the organs, the lymphatic system and the bone marrow.

54. Relations Between Meningococci and Gonococci.—Zupnik comments on Ruppel's recent announcement of the production from gonococcus cultures of an immune serum which conferred protection against meningococci as well as gonococci, and, further, a serum from meningococci which protected equally effectually against gonococcus infection. In his own experience he has occasionally cultivated from cases of epidemic cerebrospinal meningitis a coccus which seemed to be

identical with the gonococcus. He is convinced that the various clinical pictures of infectious diseases are due to the genus of the infectious agents rather than to the species. The various genera and not the species, he declares, are responsible for the special pathologic changes. To confirm these views he tried to inoculate human beings with gonorrhea by injecting them with his meningococci. Five physicians volunteered for the experiments, but the results were negative. Even the strain of meningococci which resembled gonococci so closely failed to induce any affection suggesting gonorrhea. The experiments confirmed anew, he says, "the diagnostic dignity of the species in respect to the pathogenetic properties of microbes." Ruppel's interacting sera can thus be explained by the generic specificity of the toxins and antitoxins. Experiments of others have further demonstrated that the agglutinins, precipitins, toxins and antitoxins, that is, all the antibodies produced by the gonococci and meningococci, are specific for the genus. The term "group agglutination" is misleading, he says; "genus agglutination" is the preferable term.

Deutsche medizinische Wochenschrift, Berlin and Leipsic.

55 (XXXII, No. 51, Pp. 2057-2112.) Stenosis of Larynx After Intubation and Secondary Tracheotomy. (Intubationsstenose des Kehlkopfes nach sec. Tracheotomie.) O. Franck.
56 *Points for Differential Diagnosis of Peritonitis. (Diff.-diagn. Kriterien der Peritonitis.) A. Barth.
57 *Varix Simulating Incarcerated Femoral Hernia. (Diagn. Schwierigkeiten in der Beurteilung inkarzerierter Schenkelbrüche.) J. P. Haberern.
58 Rinsing the Vagina and Disinfection of the Hands. (Scheidenspülung und Handedesinfektion.) E. Opitz.
59 Sciatica Induced by Backward Flexion of the Uterus. (Durch Retroflexio uteri bedingten Fall von echter Ischias.) Offergeld.
60 Artificial Eardrums of Paraffin and of Silver. (Künstl. Trommelfelle aus Paraffin und Silber.) B. Gomperz.
61 *Report of German Sleeping Sickness Expedition. (Ueber den bisherigen Verlauf der deutschen Expedition zur Erforschung der Schlafkrankheit in Ostafrika.) R. Koch.
62 *Treatment of Gonorrheal Epididymitis. (Behandlung der Ep. gonorrhoica.) C. Schindler.
63 Deviation of Complement and Differentiation of Albumin. (Komplementablenkung und Blutelweissdifferenzierung.) P. Uhlenhuth.
64 Orthocentric Eyeglasses No Improvement. (Sind orthocent. Kneifer zu empfehlen?) W. G. Feilchenfeld.
65 Ancient Arabian Surgeons. (Die Chirurgie der Araber.) F. Durante.
66 (No. 52, Pp. 2105-2128.) Treatment of Anemia. (Behandlung der Anämien.) G. Sittmann. Clinical lecture.
67 *Early Diagnosis of Carcinoma of Stomach. (Frühdiagn. des Magencarcinoms.) A. Albu.
68 *Apparatus for Increasing Effect of Extension Treatment of Fractures. (Einfache Vorrichtung zur Unterstützung der Bardenheuerschen Extensions behandlung der Frakt.) K. Vogel.
69 A New Tonsillotome. (Ein neues Pharynxtonsillotom.) E. Barth.
70 Aspirator for Nasal Affections. (Zur Technik der Saugbehandlung von Nasenleiden.) J. Martin.
71 *Complicating Hemorrhagic Diathesis in Scarlet Fever. (Kompl. häm. Diathesen bei Scharlach.) H. Klose. (Commenced in No. 51.)

56. **Differential Diagnosis in Peritonitis.**—Barth makes a practice of dictating his diagnosis, made from the clinical study of the case before the operation, and then comparing it later with the pathologic anatomic findings. He has found this extraordinarily instructive, and has notes of 117 cases thus studied in detail. In 90 cases of peritonitis, a rise in the temperature was invariably noted at the beginning of the affection when it originated in the appendix; vomiting occurred in every case without exception, sometimes recurring and sometimes persisting, especially when the inflammation spread rapidly over the peritoneum, but the reflex rigidity of the abdomen was the most important symptom as it occurred constantly and its location and extent were directly proportional to the inflammation in the abdominal cavity. Whenever the abdomen was found rigid on both sides the peritonitis invariably proved to have extended to both sides, but when the rigidity was restricted to one side, the inflammatory process was always found limited to that side. This rule does not apply to serous effusions; these were found in his experience invariably sterile, and his 16 patients in this class all recovered. He ascribes the serous effusion to distant toxic action from an encapsulated focus, and the prognosis is good. He explains the rigidity of the abdominal walls as a local symptom of irritation of the sensory nerves of the parietal peritoneum from certain special chemical conditions. The more intense the toxic action, the greater the rigidity. In peritonitis originating in the female genital organs, gonorrheal or puerperal, rigidity was never observed. In gonorrheal peritonitis the pulse rate increased much more rapidly than with appendiceal peritonitis; meteorism was frequently noted, and the abdomen was very painful, especially on pressure. There was also always characteristic tenderness in the posterior roof of the vagina, and the slightest movement of the uterus was painful. Gonorrheal pelveoperitonitis generally develops at the time of the menses. Palpation of the tubes at this stage is not free from danger and is unnecessary. After the peritonitis had subsided he invariably found the characteristic thickening of the ureter or tubes. Differentiation is important as gonorrheal pelveoperitonitis does not indicate operative intervention, and a fatal outcome from extending peritonitis is not known to him except in cases in which the focus in the ovary was not left to subside spontaneously under rest. If the protecting adhesions are broken up by rough manipulations, the prognosis, of course, becomes bad. In puerperal streptococcus peritonitis the abdomen is much less painful and there is no rigidity as in appendiceal peritonitis; meteorism is a prominent feature. Rigidity was observed in a case of rupture of the liver with suppuration, and with colon bacilli in the pus, and Trendelenburg also observed it in a case of rupture of the spleen. It was absent, on the other hand, in 5 cases of sterile tubal abortion.

57. **Varix Simulating Femoral Hernia.**—Haberern describes a case of supposed femoral hernia in a woman of 49 who had worn a truss for nearly four years. Symptoms of incarceration indicated operative interference, undertaken under consultation, when the trouble was found to be a large varix. After evacuation and ligation of the varix all disturbances ceased. He reviews the similar cases on record. In some the varix simulated an inguinal hernia.

61. **Success of Arsenic in Sleeping Sickness.**—See news item on page 149.

62. **Treatment of Gonorrheal Epididymitis.**—Schindler writes from Neisser's clinic to extol the value of puncture in treatment of acute gonorrheal epididymitis. It is impossible, he states, to learn otherwise of the presence of pus and to heal the process. In one case there was high fever, and the process persisted refractory to the usual measures. One puncture proved negative, but a second puncture brought thick pus, after which the process rapidly subsided. Even at the best, he remarks, the relics of the affection are liable to entail more or less serious functional disturbances later, and no pains should be spared in prophylaxis. The physician should strive to restrict the primary infection to the anterior urethra, and the public should be educated to consult a physician at the first slight symptoms of infection, and not to wait until possibly irreparable damage has been done.

67. **Early Diagnosis of Gastric Cancer.**—Albu insists on the great diagnostic importance of a gradual loss of weight notwithstanding a nourishing diet with easily digestible food given in small amounts at frequent intervals. If the patient continues to lose weight, the assumption of a malignant process is justified. If attention is directed to the stomach, symptoms suggesting atrophic chronic gastritis point to carcinoma in the fundus, while symptoms suggesting stenosis of the pylorus indicate cancer in the pyloric region, particularly when the amount of hydrochloric acid slowly declines from week to week. In his experience, the history never has had the slightest value in the diagnosis of gastric cancer. An inoperable lesion may lurk behind the slightest subjective disturbances. Only by the most attentive observation of the course of the objective signs of the disease may we hope to diagnose it in its early stages, that is, before a palpable tumor is discovered. He reports 2 cases in which an operation was undertaken on an early diagnosis based principally on the constantly progressive loss of weight. In the first case a man of 52 lost 6¼ pounds in the course of four and one-half weeks; in the second, a woman of 45 lost 10 pounds in about four months. Both patients were constantly under observation on a nourishing, comparatively well-relished diet. The operation in the first case revealed a flat tumor smaller than a silver dollar, on the posterior wall. In the second case the tumor

was scarcely as large as a walnut, and had developed on the basis of an old, flat ulcer in the pyloric region. Albu remarks that it certainly must be one of the smallest gastric carcinomata ever diagnosed in the living subject. The patient is in good health to date.

68. **Apparatus for Improved Extension.**—Vogel's apparatus consists of a triangular iron frame with three legs, like a small triangular bed, on which the patient's arm or leg can be placed to maintain sufficient abduction in extension treatment of fractures. He has slightly modified the Bardenheuer apparatus as he shows in his illustrations.

71. **Complicating Hemorrhagic Diathesis in Scarlet Fever.**—Klose reports in detail a case of mild petechial scarlet fever complicated by a hemorrhagic diathesis with remittent manifestations and exacerbations. The patient was a girl of 6, and the clinical diagnosis was chronic hemorrhagic purpura following scarlet fever. Autopsy revealed a general hemorrhagic diathesis with fatty degeneration of the myocardium. The scarlet fever occurred in May, 1904, and the child succumbed to exhaustion two years later. She had been previously healthy, with healthy parents. The case further shows the benefits of gelatin treatment, four courses of 10 per cent. solution of gelatin having been followed by arrest of the hemorrhages in 24 or 48 hours, and absorption of the blood in from 12 to 45 days. A total of 520 c.c. of the 10 per cent. solution were injected subcutaneously in addition to internal administration, without harm, but the extremely chronic course of the affection prevented regeneration of the blood.

Jahrbuch f. Kinderheilkunde, Berlin.

Last indexed, page 341.

72 (LXIV, No. 6, Pp. 779-896.) *Gonococcus Infection in Children; Its Prevalence in Institutions, and Its Prophylaxis. (Gon.-Inf. bei Kindern, mit bes. Bezugnahme auf deren Vorkommen in Anstalten und die Mittel zur Verhütung derselben.) L. Emmett Holt.

73 Innervation of the Mammary Gland. (Zur Physiologie der Milchdrüse.) K. Basch.

74 *"Congenital" Megacolon not Congenital but Acquired. (Ungewöhnlich umfangreicher "Dickdarm" bei Kindern.) W. E. Tschernow.

75 Physical Proportions of the Newborn. (Körperproportionen des Neugeborenen.) S. Weissenberg.

76 *Grooves in the Thighs of Children. (Oberschenkelfalten des Kindes.) M. Cohn.

72.—See THE JOURNAL, vol. xliv, 1905, page 1146.

74. **Enlargement of the Large Intestine in Children.**—Tschernow reviews the history of Hirschsprung's "megacolon congenitum," summarizing the various cases that have been published and adding two from his own experience. He is convinced that the condition is not congenital, but is acquired from some obstruction. The various conditions causing the obstruction are generally located in the lowest segment of the sigmoid flexure, especially at its junction with the rectum. Treatment should include measures to empty the bowels temporarily with an artificial anus, and later entero-anastomosis, uniting the cavity of the sigmoid flexure or the upper part of the descending colon with the ampulla of the rectum. His two cases show the possible advantages of treatment on these principles. Another patient, a girl of 4, thus operated on in 1904, is still in good health, and Björksten has had a similar experience in one case. In short, "megacolon congenitum" is not congenital, he declares, but acquired, and is amenable to treatment.

76. **Folds in Infants' Legs.**—Cohn remarks that the folds and grooves in the legs and arms of plump infants have been studied by artists, but otherwise little attention has been paid to them. He ascribes their origin to the position of the child in the uterus. Asymmetry in the adductor fold suggests the possibility of congenital dislocation of the hip joint, before any other sign of it is apparent, although asymmetry is frequently observed in normal children. The depth of the grooves is an index of the child's general condition, as any affection tending to loss of flesh smooths out the grooves more or less, and they never return to the same extent.

Monatsschrift f. Geb. und Gynäkologie, Berlin.

Last indexed, page 344.

77 (XXIV, No. 6, Pp. 703-846.) Comparative Physiology of the Menstrual Cycle. (Zur Kenntnis des menstruellen Cyklus.) M. van Herwerden.

78 *Obstetrics in Maternities and at the Home in Their Relation to Artificial Premature Delivery. (Anstaltsgeburtshilfe und Hausgeburtshilfe.) O. v. Herff.

79 Treatment of Delivery with Contracted Pelvis. (Geburt bei engem Becken.) E. Bauer.

80 *Parathyroid Insufficiency in Respect to Eclampsia and Tetany. (Experimentelle Versuche zur parathyr. Insuff. in Bezug auf Eklampsie und Tetanie, mit bes. Berücks. der antitoxischen Funktion der Parathyroideæ.) V. Frommer.

81 Review of Recent Works on Suprarenal Preparations and Gelatin as Hemostatics in Gynecology and Obstetrics. (Nebennierenpräparate und Gelatin.) M. Neu.

82 Recent Works on Appendicitis in Women. (App. bei der Frau.) R. Klein.

78. **Advantages of Artificial Premature Delivery in Case of Contracted Pelvis.**—If a woman is delivered in a maternity, von Herff thinks that expectant treatment, with possibly Cesarean section or pubiotomy at need, should be the rule. But if delivered at home, the dangers of these operations and other considerations should impel the physician to advise artificial premature delivery as promising far better results with less danger for the mother. The relations between the head and the pelvis must be carefully determined beforehand; preliminary version should be avoided as far as possible, as also the use of the high forceps, and pubiotomy should be the last resource. He cites his experiences and various statistics and urges that more attention should be paid in the medical schools to instructing the students in obstetrics as applied in the home. Far more childbirths occur in the home than in a lying-in institution, and the conditions vary widely in the two.

80. **Parathyroid Insufficiency in Respect to Eclampsia and Tetany.**—Frommer's experiments on animals have confirmed the assumption that the parathyroid glands have an antitoxic function, the lack of which entails tetany. Partial removal of the parathyroids in the non-gravid rabbit does not cause any appreciable disturbances, but total removal may have a fatal effect. The entire removal of both parathyroid and thyroid glands may induce fatal tetany. Five grams of sterilized, normal human placenta tissue introduced into the abdomen of a rabbit or other animal after partial removal of the parathyroids caused invariably severe disturbances, evidently inducing extremely toxic metabolic products. The young all died later, although apparently healthy. He describes the anatomy of the human parathyroid glands. He found four in 12 cadavers and only two in two others. They are less transparent than lymph glands and are further distinguished by the reddish, yellowish tint. They are round or oval, from 2.5 to 15 mm. in diameter, and a little tougher in consistency than the thyroid gland. The article reviews the present status of our knowledge in regard to the parathyroids, including Vassale's theory and his method of treating eclampsia with extract of beef parathyroid substance.

Münchener medizinische Wochenschrift.

83 (LIII, No. 52, Pp. 2565-2588.) *Dosage and Mode of Administering Anesthetics for Spinal Anesthesia. (Lumbalanæsthesie.) C. Hofmann.

84 Proteolytic Ferment of the Leucocytes and the Autolysis of Normal Human Blood. (Proteolytische Ferment und Autolyse normalen Menschenblutes.) F. Erben.

85 *Technic of Spirochete Staining. (Spirochätenfärbung.) A. Kraus.

86 Pseudoarthrosis of the Styloid Process of the Ulna. (Pseudarthrose.) A. Stoffel.

87 Earning Capacity After Healing of Artificial Anus. (Erwerbsbeschränkung nach Heilung eines Anus praeternaturalis.) M. Mayer.

88 Epidemic Cerebrospinal Meningitis and Its Origin in Mines. (Grubeninfektion beim Entstehung der Genickstarreepidemien.) L. Jehle.

89 Graphic Records of Lung Findings. (Bildliche Darstellung von Lungenbefunde.) Besold and Elkan.

90 Active Principle of Vaccine. (Vakzineerreger.) J. Siegel.

91 (LIV, No. 1, Pp. 1-56.) Statistics and Pediatrics. (Statistik und Säuglingsfürsorge.) A. Schlossmann.

92 The Bonn Station for Milk for Infants and Advice for Mothers. (Mutterberatungsstelle und Säuglingsmilchküche.) Esser.

93 The Dispensary for Infants at Weissenburg. (Säuglingsfürsorgestelle.) H. Doerfler.

94 Determination of Toxin in the Blood in Diphtheria. (Nachweis des Toxins in dem Blute des Diphtheriekranken.) C. Fraenkel.

95 *Air Massage. (Luftmassage.) R. Klapp.

96 Relations Between the Orbit and the Pterygopalatine Fossæ. (Bez. der Orbitae zu den Fossae pteryg.-palat.) W. Krauss.

97 *Filling the Bladder with Oxygen to Aid in Cystoscopy and Radiography. (Füllung der Blase mit Sauerstoff zum Zwecke der Cyst. und Rad.) L. Burkhardt and O. Polano.

98 Treatment of Gonorrheal "Posterior Cystitis" by the General Practitioner. (Gon. Posteriorzystitis.) Kromayer.

99 *Two Cases of Aural Vertigo Cured by Operation. (Ohrschwindel.) Isemer.
100 *Treatment of Gastrointestinal Hemorrhages with Fluid Gelatin (Magen- und Darmblutungen.) A. Mann.

83. **Dosage for Spinal Anesthesia.**—Hofmann announces that he has been surprised to find that weaker dilutions induce anesthesia as completely as the customary dosage of the anesthetics. He used to inject a 5 per cent. solution, but now uses only 1 per cent., increasing the amount of fluid to correspond. His experience has shown that the larger amount of fluid required aids the induction of the anesthesia while materially reducing the by-effects.

85. **Improved Technic for Spirochete Staining.**—Kraus commends the Giemsa technic, preceded by fixation of the specimen with the fumes of osmic acid, according to the Hoffmann-Halle modification. This shows up the spirochetes well, but the effect is liable to be marred by precipitation of the stain, and Kraus has devised a means to avoid this. The specimens prepared by the above technic are placed for about half a minute in a 30 per cent. aqueous solution of tannin. The results are most excellent.

95. **Massage with Air.**—Klapp has been studying the reactive hyperemia induced by facing the wind for some time, and has been striving to apply the same principle in therapeutics. He has nothing practical yet to announce in this line, but in his research on this subject he has learned the efficacy of strong jets of air as a means of massage. He uses a one-horse power motor to produce the jet of air which issues from an adjustable nozzle, about 8 cm. in diameter. The air can be hot or cold, and the jet is so strong that it hollows out a depression in the tissues and the skin piles up in folds around the spot—an actual massage of the skin and tissues below without any surface friction. The part feels cold and empty if cold air has been used, but a reactive hyperemia follows at once on the application of warmth to the part, the reaction increasing in intensity with each sitting. The indications for this "frictionless massage" are the same as for any massage. It has the advantage of being painless; the air massage is agreeable rather than otherwise, and there is no danger of displacement of a reduced fracture. It is also useful for promoting the absorption of infiltrates and edema after subsidence of an inflammatory process. If the continual jet of air is constantly turned on and off in rapid succession the result is a kind of vibratory massage, an absolutely painless, frictionless shaking of the parts. Klapp is assistant at Bier's clinic at Bonn.

97. **Filling the Bladder with Oxygen for Cystoscopy and Radiography.**—Burkhardt relates that when the bladder is irritable he has found it a great advantage to fill it with oxygen, instead of air or fluid, as a preliminary to cystoscopy or radioscopy. The oxygen is chemically pure and no danger of embolism need be feared from it, while it has actually a soothing and sedative action on very irritable bladders. This result is similar to Hoffa's experience with it in joint affections. Comparative radiography, with and without the oxygen, showed that the shadows cast by bladder stones were much more distinct with the oxygen and the details of the bladder walls could be inspected more clearly. The advantage was so marked that it suggests the possibility of introducing oxygen into the hilus of the kidney through the ureter catheter, he declares, in puzzling cases of kidney stones.

99. **Aural Vertigo Cured by Operation.**—The two cases described were remarkable in the sudden onset of the vertigo, its severity, and its prompt subsidence after operative treatment of a long chronic middle ear affection.

100. **Treatment of Gastrointestinal Hemorrhage with Fluid Gelatin.**—Mann reports nine cases of gastrointestinal hemorrhage cured by administration of a tablespoonful of a mixture of 2 gm. citric acid and 20 gm. syrup of bitter orange peel to 200 gm. of fluid gelatin. One patient was at the eighteenth day of typhoid fever when a little blood was observed in the stools and the gelatin mixture was given every two hours; no further traces of blood were observed. The gelatin was given several days in another typhoid case with the same result. The other patients suffered from ulcer or cancer of the stomach, and in every instance the blood vanished from the stools on the administration of the gelatin. The only exception was in a case of very severe typhoid fever. Serious intestinal hemorrhage suddenly occurred, but was arrested by the use of various hemostatics, including the gelatin mixture, and the stools next day were free from blood. Another and immediately fatal hemorrhage occurred a few days later and autopsy revealed multiple serious intestinal ulcerations. In all the other cases the benefit was prompt and marked without the use of any other measures.

Virchow's Archiv, Berlin.

Last indexed, page 272.

101 (CLXXXVI, No. 3, Pp. 321-524.) Finer Structures of the Bones, with Special Regard to Rachitis. (Feinere Knochenstrukturen.) F. Dyrenfurth.
102 *Kidney Cysts. (Nierencysten.) C. Braunwarth.
103 Physiology of Islands of Gastric Mucosa in Upper Segment of Esophagus. (Magenschleimhautinseln im obersten Oesophagusabschnitte.) H. Schridde.
104 Histology of Nodose Goiter. (Struma nodosa.) L. Michaud.
105 *Energy of Growth and Etiology of Malignant Tumors. (Wachstumsenergie und Et. der bösartigen Geschwülste.) P. Kronthal.
106 (CLXXXVII, No. 1, Pp. 1-196.) Development and Absorption of Experimentally Induced Amyloid Substance in the Salivary Glands of the Rabbit. (Amyloidsubstanz in den Speicheldrüsen von Kaninchen.) W. Dantchakow.
107 Amyloid Degeneration of the Heart. (Herzamyloid.) P. Huebschmann.
108 Vaginal Cysts. (Cysten der Vag.) A. T. Högström.
109 Case of Missing Thyroid Gland and Vicarious Thyroid Tumor on the Tongue. (Athyreosis und vikar. Zungenstruma.) E. Ungermann.
110 *Pathology of Branchial Parathyroids. (Path. der branch. Epithelkörperchen.) T. v. Verebely.
111 Dwarf Growth in Related Families in High Alpine Valley. (Mehrfacher Zwergwuchs.) Schmölck.
112 *Icterus, Ascites and Enlargement of Spleen in Cases of Cirrhosis of Liver. (Milztumor, Icterus und Ascites bei Lebercirrhose.) F. Klopstock.
113 Histologic Characteristic Enlargement of the Spleen, Generally Familial. (Eine Systemerkrankung des lymphatisch-hämopoetischen Apparates Typus Gaucher.) F. Schlagenhaufer.
114 *Laws Regulating the Natural Resistive Forces at Various Ages. (Altersgesetz der nat. Widerstandskraft.) L. Ascher.
115 *Source of Pulmonary Anthracosis of the Lungs. (Ursprung der Lungenanthrakose.) H. Beltzke.

102. **Kidney Cysts.**—Braunwarth states that the normal kidneys of fetuses, newborn infants and nurslings contain actual cysts in about 50 per cent. He ascribes them to arrested development, and states that they are liable to increase in size with advancing years, especially in case of inflammation in their vicinity.

105. **Etiology of Malignant Tumors.**—The article is subdivided as: "Relations of the Malignant Tumor to Its Bearer," "The Cell Is the Elementary Organism," "Form and Function of the Cell Determine the Conditions Under Which It Lives," "Fertilization and Segmentation of the Cell," and "Why the Previous Conceptions in Regard to Malignant Tumors to Date Have Not Been Satisfactory." The aim of Kronthal's argument is to the effect that the cells of the malignant tumors are not old cells of the individual, whose character has been transformed, but they are the young descendants of some freshly fertilized cells of the individual bearing the tumor or of another individual of the same species. The tumor cell is the descendant of a union between epithelial elements or migrating cells. Freshly fertilized cells show the greatest energy of growth. The cells of sarcoma and carcinoma, like the migrating leucocytes, have the faculty of ameboid movements. This enables them, like the migrating leucocytes, to emerge free on the mucosa and thence find their way to another individual. That they often do break loose is shown by the metastases. Wherever the migrating cell or the foreign tumor cell gets a hold and remains, wherever the fertilization of a fixed epithelial cell occurs, there the cancer develops.

110. **Pathology of Parathyroids.**—Verebely reviews the cases of anomalies in development of the parathyroids that have been published and three cases of cysts from his own experience, with others of primary affections of the parathyroids and secondary disturbances.

112. **Icterus, Ascites and Enlargement of Spleen with Cirrhosis of the Liver.**—Klopstock found ascites in 172 out of 250 cadavers with cirrhosis of the liver. He believes that these findings indicate that the same toxic cause inducing the cirrhosis is also responsible for the ascites. The frequency of coincident intestinal tuberculosis was also striking. The absence of ascites in two instances shows that the effusion is not re-

sponsible for the predisposition to the tuberculous affection. Other facts which he cites sustain his assumption that cirrhosis of the liver may result directly from tuberculous infection. In short, he insists that although the prevalence of cirrhosis of the liver in hard drinkers and the predisposing influence of alcohol are not to be denied, yet the decisive rôle in the production of the affection does not belong to them, but to bacteria and their toxins. He noted cholelithiasis in 8.6 per cent. of 209 men, and in 17 per cent. of the 41 women in his material. He ascribes the benefit of extirpation of the enlarged spleen in certain cases to the fact that the spleen is not only the dumping ground for all the foreign bodies circulating in the blood, but is also able to bind and hold toxic substances. The operation removes the organ which, by its faculty of attracting toxic substances, becomes the source of a condition of chronic intoxication. Icterus was observed in 66 of the 250 cadavers.

114. **The Age Laws of the Natural Resisting Forces.**—Ascher presents a number of curves drawn from vital statistics and other sources, all of which demonstrate, he thinks, that the natural resisting forces are at their highest point during the age from 5 to 15, and decline each way in a regular progression. Knowledge of this law will prevent misconception in many lines in biology, pathology and hygiene. It should be borne in mind, he says, in compiling vital statistics. One of the practical results of this law is that the outlook for sanatorium treatment of tuberculosis is most promising between 16 and 20.

115. **Origin of Anthracosis of the Lungs.**—Beitzke found that insoluble particles passed through the intact intestinal wall of animals and were distributed in the lymph to various organs, but the lungs were least affected. Scarcely any of the particles found their way into the lungs, while other organs, especially the liver and spleen, were gorged with them. The particles which he did find in the lungs he attributes to preceding inhalation.

Norsk Magazin f. Lægevidenskaben, Christiania.

Last indexed, page 272.

116 (LXVII, No. 11, Pp. 1249-1376.) *Epidemics and the Weather. (Genius epidemicus.) A. Magelssen.
117 Diplococcus Found in Noma. (Bakt. undersøgelser over et tilfælde af noma.) E. Hellesen.
118 *Experimental Polyuria and the Hanssen "Variability Test" in Examining Kidney Functioning. (Variabilitetsprøven og exp. polyuri.) J. Nicolaysen.

116. **Epidemics and the External Forces of Nature.**—Magelssen believes that the curves for the biologic phenomena as well as for the medico-pathologic are nothing but a somewhat modified reflection of the variations of the weather. He thinks that this can be mathematically established, and that the special meteorologic causes for each sickness might thus be rendered evident. He regards the vital phemonena as a consequence, a reflection of the external forces that surround the organism, acting on it, transforming it and given back. The weaker the organism the less resistance it opposes to the transforming action of external influences. The cause of the so-called "constitutio epidemica" or "genius epidemicus" should be sought in connection with the external forces of Nature, the beneficent as well as the injurious and the destructive, which manifest themselves to us in the various elements of the weather.

118. **Tests of Kidney Functioning.**—The "variability test" is a combination of extreme dilution of the urine on one day with fluid diet, followed two days later with a dry diet, thus inducing extreme concentration of the urine. The test requires six days, and the patient must stay in bed, but the findings are extremely instructive as the kidney functioning in these two directions of dilution and concentration is compared, the specific gravity of the urine reaching its lowest and highest figures in turn. Nicolaysen examines the urine every two hours and gives the curves of 28 cases of various kidney affections in which these tests were applied, with the findings in 18 healthy persons. He also gives the curves of three cases in which he applied the experimental polyuria test after catheterization of the ureter, having the patient drink three glasses of water or water gruel; he examined the urine every half-hour before and after.

Archivio per le Scienze Mediche, Turin.

Last indexed, page 183.

119 (XXX, No. 3, Pp. 217-340.) Mononuclear Leucocytes. (Sui globuli bianchi mononucleati.) A. Ferrata.
120 Postmortem Forms of Myelin. (Forme mieliniche postmortali.) E. Bizzozero.
121 Branchiogenic Relics and Tumors Originating in Them. (Residui branchiogeni e neoformazione cui danno origine.) G. Mioni.
122 *Experimental Study of Removal of Thyroids and Parathyroids. (Ablazione delle tiroide e delle paratiroide.) M. Segale.
123 Supernumerary Muscles in Back of Hand. (Moscoli sopran. del dorso della mano.) C. Bruni.
124 *Localization of Typhoid Bacilli in Biliary Apparatus. (Loc. del bac. del tifo nell' apparechio bil.) P. Sisto.

122. **Ablation of Thyroid and Parathyroids.**—Segale tabulates the results of much experimental research in this line. They demonstrate that tetany, although of frequent development after thyroidectomy, is not a fundamental symptom. It is similar to death from dilatation of the heart in a case of tuberculosis; the heart disturbances are not the essential feature of tuberculosis. After parathyroidectomy such profound disturbance of the metabolism occurs that all efforts on the part of the organism to repair it are absolutely ineffectual. The old notion of cachexia strumipriva is based on solid foundations, he states, and means more than ever before, only the disturbances are not due to the extirpation of the thyroid, but rather to the parathyroidectomy unwittingly done at the same time. The symptomatology is the same whether the parathyroids alone or the parathyroids plus the thyroid are extirpated. True cachexia strumipriva kills in from 15 to 16 days, incidentally by tetany perhaps, but in reality by the intense disturbance of the metabolism resulting from lack of the parathyroid function.

124. **Localization of Typhoid Bacilli in Biliary Apparatus.**—Sisto describes two cases in which a suppurative process developed in the gall bladder in the course of typhoid fever. In the first case ulceration progressed to necrosis and perforation of the walls of the gall bladder. The resulting peritonitis remained limited and encapsulated, but the patient succumbed later to diffuse peritonitis from perforation of an intestinal ulceration. In the second case the typhoid fever was of a mild type, but very protracted. In the seventh week a suppurative cholecystitis developed, but without ulceration or necrosis. The process spread to the liver, where numerous abscesses followed. The symptoms in this case were merely a continuous dull pain in the right upper abdomen, increased by pressure, with rigidity of the abdominal wall. This pain was probably the sign of a slow development of the cholecystitis and involvement of the liver. The patient succumbed the ninth week of the typhoid fever after presenting symptoms of bronchopneumonia.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

THE PRACTITIONER'S MEDICAL DICTIONARY. An Illustrated Dictionary of Medicine and Allied Subjects, including all the Words and Phrases Generally Used in Medicine. By George M. Gould, A.M., M.D., Editor of *American Medicine*. Containing among other new features the terms of the Basle anatomic nomenclature and the standards of pharmaceutic preparations as given by the eighth decennial revision of the U. S. P. Illustrated. Flexible leather. Pp. 1043. Price, $5.00 net. Philadelphia: P. Blakiston's Son & Co.

AMERICAN POCKET MEDICAL DICTIONARY. Edited by W. A. N. Dorland, A.M., M.D., Assistant Obstetrician to the Hospital of the University of Pennsylvania. Containing the pronunciation and definition of all the principal terms used in medicine and kindred sciences, with over 60 tables. Fifth edition. Flexible leather. Pp. 578. Price, $1.00 net. Philadelphia: W. B. Saunders Company, 1906.

CHEMICAL PATHOLOGY. A Discussion of General Pathology from the Standpoint of the General Processes Involved. By H. Gideon Wells, Ph.D., M.D., Assistant Professor of Pathology in the University of Chicago. Cloth. Pp. 549. Price, $3.25 net. Philadelphia: W. B. Saunders Company, 1907.

ANATOMY FOR NURSES. By E. R. Bundy, M.D., Member of the Medical Staff of the Woman's Hospital, Philadelphia. With a glossary and 191 illustrations, 34 of which are colored. Cloth. Pp. 252. Price, $1.75 net. Philadelphia: P. Blakiston's Son & Co., 1906.